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ACRONYMS

DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
DOE	Department of Energy
EMB	Environmental Management Bureau
EPR	Extended Producers Responsibility
HID	High Intensity Discharge
Hg	Mercury
HW	Hazardous Waste
PPE	Personal Protective Equipment
RA	Republic Act
SMR	Self-Monitoring Report
TCLP	Toxicity Characteristic Leaching Procedure
TSD	Treatment, Storage, and Disposal
UV	Ultraviolet

1.0 INTRODUCTION

Fluorescent lamps are among the most widely used electric light sources found in homes, local businesses, offices, hospitals, schools, stores, and buildings. Fluorescent lighting has energy efficiency and cost savings features. These lamps especially compact fluorescent lamps use about one-fourth the energy required and last about 5-10 times longer than energy intensive incandescent bulbs.

However, these fluorescent lamps as well as other types of energy-efficient lighting contain mercury, which is toxic. When broken, compacted, crushed, or disposed improperly; fluorescent bulbs may release mercury into the air, water, and land; posing significant threat to people and the environment.

Other than mercury, there are other toxic substances such as lead which are contained in lamps and bulbs and pose a threat to public health. Because of these components, lamp wastes are regulated hazardous wastes under Republic Act (RA) 6969 and are considered as “special wastes” under RA 9003.

This technical guideline provides instruction for the environmentally sound management of mercury-containing wastes in accordance with RA 6969 and RA 9003. It addresses the treatment, storage, and disposal (TSD) procedures for lamp wastes.

2.0 DEFINITION OF TERMS

Container – Any portable device, in which a material is stored, transported, treated, disposed off, or otherwise handled.

Disposal – Discharge, deposit, or placing of any lamp waste into its final disposition with no intention of retrieval for the foreseeable future.

Hazardous Waste – Solid or liquid waste that can pose substantial or potential hazard to human health or the environment when improperly managed.

Hazardous Waste Identification Number – Number assigned by the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR) to each generator, transporter, and TSD facility of hazardous waste.

Incompatible Waste – Hazardous waste which is unsuitable for placement in a particular device or facility because it may cause corrosion or decay of containment materials; or commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes, or gases, or flammable fumes or gases.

Lamp Waste – Also referred to as busted or spent lamps, are any type of mercury-containing lamp that includes fluorescent, high- and low- pressure sodium vapor lamp, mercury vapor and metal halide lamps that are generated by a wide variety of generators including domestic, retail establishments, manufacturing establishments, and office buildings. These types of lamp waste include the following:

- a. Fluorescent lamps (compact, linear/tubular, circular) – widely used for general lighting in homes and offices
- b. High-pressure sodium vapor lamps – used in street lighting or roadway lighting, parks, and parking lots
- c. Low-pressure sodium vapor lamps – application limited to security and tunnel lighting where color rendering and appearance are not the primary consideration
- d. Mercury vapor lamps – used in landscape lighting
- e. Metal halide lamps – widely used in retail clothing and furniture stores, warehouses, and factories

Lamp Waste Transporter – Any person authorized by DENR to receive or collect lamp waste from generators, and transport by land, air, or water to accredited treatment and disposal facilities.

Lamp Waste Generator – Person, natural or juridical, who last uses a mercury-containing lamp and makes it available for disposal; any person who generates the lamps, i.e., the person who used the lamps, then determined that they are no longer usable and should be discarded.

Landfill – Waste disposal site designed, constructed, operated, and maintained in a manner that exerts engineering control over significant potential environmental impacts arising from the development and operation of the facility.

Large Quantity Lamp Waste Generator – Any household, commercial, institutional, and industrial establishment that has 300 or more lighting fixtures or generates an annual average of more than 100 pieces of discarded mercury-containing lamps.

Manifest – Transport document for hazardous waste tracking by EMB originated and signed by the generator in accordance with instructions in DENR Administrative Order (DAO) 92-29 and DAO 04-36.

Mercury and Mercury Compounds – Includes all wastes with mercury regardless of concentration. These also include organo-mercury compounds as defined in DAO 97-38 or the Chemical Control Order of Mercury.

Special Hazardous Wastes – Refer to substances discarded from households and consumer or industrial goods or products, which become hazardous at the end of its useful life by virtue of its toxic or hazardous content and which may be released to the environment upon indiscriminate disposal.

Storage – Containment of hazardous wastes, either on a temporary basis or for a period of years, consistent with the guidelines as prescribed by DENR and in such a manner as not to constitute disposal of such wastes.

Toxicity Characteristic Leaching Procedure (TCLP) – Analytical method used to determine the toxicity of waste.

3.0 RELEVANT PROVISIONS OF RA 6969 AND RA 9003

There are two (2) major laws that directly or indirectly affect lamp waste management in the Philippines. These are RA 6969, otherwise known as the Toxic Substances, Hazardous and Nuclear Waste Control Act, and RA 9003 or more popularly known as the Ecological Solid Waste Management Act.

3.1 RA 6969

RA 6969 was passed into law in 1990, with the ultimate goal of ensuring full protection of the people's health and the environment from unreasonable risks posed by industrial chemicals and chemical substances. The law provides the legal framework for the country's program to control and manage the importation, manufacture, processing, distribution, use, transport, treatment, and disposal of toxic substances and hazardous and nuclear wastes.

Through RA6969, detailed mechanisms for its implementation were further issued in the form of DAOs. With mercury as the most important hazardous component of lamps, the DAOs that are directly related to the handling of mercury-containing lamp wastes are:

- DAO 92-29: Implementing Rules and Regulations for RA 6969
- DAO 04-36: Amending DAO 92-29
- DAO 97-38: Chemical Control Order (CCO) for Mercury and Mercury Compounds

DAO 97-38 was issued in December 23, 1997. The CCO established that the use of mercury and its compounds in electrical apparatus is allowed. The wastes resulting from its use require proper management and disposal approval from the DENR. Under the CCO, any mercury waste generator should comply with the following requirements:

- Register with DENR-EMB as hazardous waste generator
- Submit Mercury Management Plan
- Submit Quarterly Reports
- Comply with the manifest system in the handling and disposal of mercury wastes

In terms of handling, the CCO requires that mercury wastes be contained in containers that are corrosion-resistant and strong enough to withstand breakage. The storage system should comply with appropriate labeling and packaging requirements considering the ill-effects of mercury vapor.

The CCO has also provided the appropriate information for users, transporters, workers, LGUs, and communities of facilities dealing with mercury and its wastes.

3.2 RA 9003

RA 9003 is a comprehensive yet complex law that specifies roles and responsibilities of various stakeholders on solid waste management. The law contains relevant provisions on waste segregation at source and recycling. Under the implementing rules and regulations of RA 9003, lamp wastes are not explicitly mentioned, but may be defined under the category of special wastes.

Special wastes includes household wastes such as paints, thinners, household batteries, lead-acid batteries, spray canisters, including consumer electronic goods like radios, stereos, and television sets. RA 9003 requires the segregation of the compostable, recyclable, and the special wastes.

4.0 CATEGORIES OF LAMP WASTE GENERATORS

Lamp wastes are defined as any type of mercury-containing lamps. These include:

- a. Fluorescent lamps (compact, linear/tubular, circular) – widely used for general lighting in homes and offices
- b. High-pressure sodium vapor lamps – used in street lighting or roadway lighting, parks, and parking lots
- c. Low-pressure sodium vapor lamps – application limited to security and tunnel lighting where color rendering and appearance are not the primary consideration
- d. Mercury vapor lamps – used in landscape lighting
- e. Metal halide lamps – widely used in retail clothing and furniture stores, warehouses and factories

Generators of lamp wastes are categorized as small-quantity and large-quantity generators. Table 1 presents the key description of these lamp wastes generators.

Table 1 Categories of Mercury-Containing Lamp Wastes Generators

Category of Lamp Wastes Generator	Description
Small quantity generator	Any person or entity that has less than 300 lighting fixtures or accumulates less than 100 pieces of busted mercury-containing lamps in a year
Large quantity generator	Any person or entity that has 300 or more lighting fixtures or accumulates 100 pieces or more busted mercury-containing lamps in a year

Note: Assuming 10,000 hours lamp life and 10 hours per day usage, 300 lighting fixtures will generate 100 busted lamps in a year.

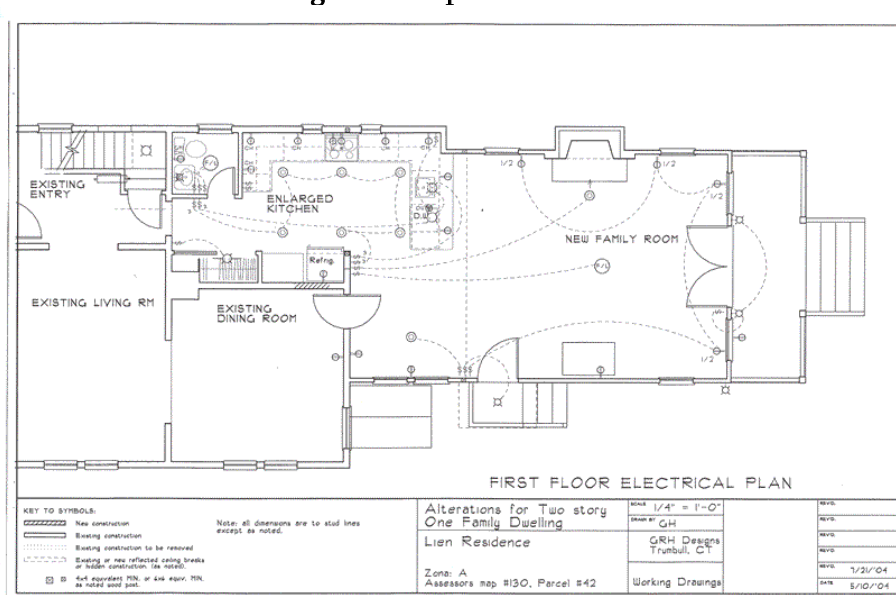
4.1 VALIDATING LAMP WASTE GENERATION RATE

The quantity of lamps installed onsite may be used to validate the number of lamps generated by a facility. The Electrical Permit issued by the City or Municipal Engineer’s Office (Annex 2) may be useful in determining the number of lighting fixtures in a facility. Submission of the Electrical Permit shall be a requirement for hazardous wastes generator registration.

To indirectly estimate the lamp waste generation rate, a brand new lamp usually lasts for about 10,000 hours. However, other factors such as daily duty, brand, and choice of technology affect the actual lamp use and replacement rate.

For validation purposes, the electrical plan (Figure 1) duly signed by an Electrical Engineer shall be the documentary evidence for qualifying as either small or large quantity generator.

Figure 1 Sample Electrical Plan



Source: http://www.thelienfamily.com/house_plans/updated/small/first_floor_elec_plan.png

4.2 REQUIREMENTS FOR LAMP WASTE GENERATORS

To encourage environmentally sound collection and proper management of mercury-containing lamps, compliance requirements are differentiated between small and large quantity generators as presented in the succeeding sections.

4.2.1 Small Quantity Generators

Small quantity generators are exempted from certain requirements routinely applied to hazardous waste management and instead are subject to the management standards. Lamp waste generators with less than 300 lighting fixtures or accumulate less than 100 pieces of busted mercury-containing lamps in a year are exempted from the requirements for registration and reporting as prescribed by DAO 04-36 and DAO 97-38. However, appropriate storage and handling requirements as outlined in this Guideline should be observed to avoid releases of mercury to the environment.

4.2.2 Large Quantity Generators

Lamp waste generators that have 300 or more lighting fixtures or accumulate 100 pieces or more busted mercury-containing lamps in a year are required to comply with the requirements for registration, management, and reporting as prescribed by DAO 04-36 and DAO 97-38. Principally, the following should be undertaken by large quantity generators:

- Secure Hazardous Waste Registration ID with the EMB
- Submit a Mercury Management Plan
- Submit Quarterly Reports
- Comply with the Manifest System

If during a three-year period, the generator consistently lowered its lamp waste generation rate to less than 100 pieces lamp wastes per year or due to re-lamping has reduced lighting fixtures to less than 300, the generator has the option to apply for an exemption from the registration and reporting requirements of DAO 04-36 and DAO 97-38. The completed manifest reports during the last three years should be presented to EMB as proof of reduced lamp waste generation. In addition, an Electrical Plan duly signed by an Electrical Engineer should be submitted as proof.

5.0 REQUIREMENTS FOR ON-SITE STORAGE OF LAMP WASTES

On-site storage of lamps is allowed as long as each lamp remains intact and that the following handling and storage requirements are complied with.

5.1 LAMP WASTES HANDLING REQUIREMENTS

When lamps are removed and replaced with new lamps, the used lamps should be properly packaged in the cardboard boxes that contained the replacement lamps. The boxes containing the hazardous lamp wastes must be labeled using the prescribed hazardous wastes label and placard (Annex 3 and 4). If on-site storage is not possible, lamp waste should be handed-over to accredited hazardous wastes TSD facilities.

5.2 LAMP WASTES STORAGE REQUIREMENTS

A safe storage area should be designated and identified to ensure that the lamps are not accidentally broken or crushed before they are sent to a treatment or disposal facility. The storage area must be well-ventilated, with fire extinguisher and appropriate emergency response equipment in case of accidental release.

Each box of busted lamp must be stored in a manner that will prevent breakage of or damage to the lamps. A written procedure on how to handle and store busted lamps must be posted inside the storage area to show employees where and how to store lamps.

Regular monitoring on mercury vapor shall be conducted inside the storage area and the results are included in the quarterly Self-Monitoring Report (SMR).

5.2.1 Accumulation Time Limits

Lamp wastes may be accumulated no longer than one year from the date the lamp wastes are generated or received from a generator, unless a proof that the extension is necessary to facilitate proper, recovery, treatment, or disposal.

5.2.2 Record Keeping of Stored Lamp Wastes

At any time lamp wastes are stored or shipped off-site, records need to be kept on-site, most particularly the Hazardous Waste Manifest. Handlers should keep track of the following:

- Number of lamps removed from service during each calendar year
- Storage location of the lamps
- Manifest

6.0 Requirements for Lamp Waste Transporters and TSD Facilities

This section presents the requirements for transporters and TSD facilities to include registration, manifest system, and liabilities.

6.1 REQUIREMENTS FOR LAMP WASTES TRANSPORTERS

Lamp wastes transporters must comply with the accreditation requirements of EMB. In addition to the requirements specified in DAO 04-36, lamp wastes transporter must have:

- Transporting vehicle appropriate for lamp wastes with signages to inform the public that the vehicle is transporting lamp wastes
- Contingency plan in cases of accident during transport
- Trained drivers (other employees) on mercury management and emergency response

- Surety or guarantee bond callable on demand to cover for accidental releases of mercury while in transport

6.2 REQUIREMENTS FOR LAMP WASTES TSD AND RECYCLING FACILITIES

Lamp waste TSD and recycling facilities are those facilities that treat, store, dispose, or recycle lamp wastes. These facilities are subject to all currently applicable requirements of hazardous waste TSD facilities and must comply with the regulatory requirements of DAO 04-36 and DAO 97-38 for such activities. Proposed or new TSD recycling facilities must comply with the Philippine Environmental Impact System (EIS) requirements as stipulated in its implementing rules and regulations.

6.2.1 Crushing of Lamp Waste

Crushing of lamps is permissible only under controlled conditions. The crushing system must have the approval of the EMB, and the selected crushing method must be carefully evaluated. The lamps must be crushed entirely inside a drum or storage unit so that no mercury vapor is released into the environment. Adequate ventilation must be provided in the area where the crushing occurs.

Crushing area should be monitored to ensure compliance with applicable exposure limits for mercury based on the Standards for Occupational Health and Safety. Employees crushing lamps should be thoroughly familiar with proper waste mercury handling and emergency procedures. Moreover, crushed tubes should be stored in closed and non-leaking containers.

Intentional crushing of characteristically hazardous lamp waste – whether it is to physically separate, reduce in volume, or facilitate for transportation, storage, or recovery – is considered “pre-treatment” unless the crushing device is capable of completing the recycling process and recovering the mercury as a product.

6.2.2 Disposal of Lamp Waste

Mercury-containing lamps should be disposed only in permitted hazardous waste landfill or government-approved recovery facility. The disposal of hazardous lamp waste and light bulbs in open or controlled dumps is prohibited.

Small-quantity waste generators may dispose lamp wastes in a municipal landfill provided the landfill has a designated cell or facility for hazardous waste and is permitted and registered by the EMB and the National Solid Waste Management Commission. Lastly, only properly packaged lamp wastes may be permitted in hazardous waste landfills for disposal.

7.0 REQUIREMENTS FOR MONITORING DISPOSAL SITES WITH LAMP WASTES

Mercury deposited on land or water may be re-emitted and reenter the environment. When mercury enters water bodies, either through direct deposition or through run-off of mercury deposited on land, series of transformations occur resulting in conversion of some of the mercury to methylated form which is more toxic and more conducive to bioaccumulation in fish.

Landfills or disposal sites that accept lamp wastes must include mercury in their leachate monitoring activity to determine the environmental fate and transport of mercury in the environment. Properly designed monitoring wells shall be established within the periphery of the landfill site to monitor possible mercury contamination and to gauge the effectiveness of the landfilling activities. Monitoring results shall be submitted to EMB as part of the SMR requirements.

8.0 COLLECTION OF LAMP WASTES BY LGUS

The Local Government Units (LGUs) by virtue of their authority under RA 9003 is responsible for the collection of special hazardous wastes including lamp waste from persons, households, and commercial establishments that qualify as small quantity generator. The LGUs may enter into agreement with entities duly accredited and registered by the EMB for the collection of special hazardous wastes. Through a Responsible Care Program for Special Hazardous Wastes, the LGUs shall enact appropriate ordinances implementing responsible care, extended producer responsibility (EPR), or product stewardship program, that shall include, but not be limited to, take back or return to supplier schemes, that shall promote cleaner production, waste minimization, and resource recovery.

The LGUs should ensure that only EMB-accredited hazardous waste collector, holding appropriate HW Registration ID are contracted for the collection of lamp wastes from small quantity generators.

9.0 EXTENDED PRODUCERS RESPONSIBILITY OR TAKE-BACK SYSTEM

Product take-back schemes can be broadly classified into voluntary and mandatory schemes. The former are also referred to as product stewardship, while the latter are often known as EPR.

EPR requires manufacturers to collect and recycle/disposed lamp wastes properly. An EPR for lamp wastes in the country could be established through the following options:

- Collection of lamp waste can be done at retail outlets, LGUs, and designated third parties
- Retailers are required to take back lamp wastes every time they sell one item
- Lighting industry association is responsible for orphan waste
- Fees are imposed on consumers at the end of the product life, and that recycling (rather than recovery or collection) targets are specified

- Advanced disposal fees can be embedded in the purchase price of the products, and purchase of a new light bulb must require either the return of a spent bulb or the payment of an extra fee
- Discount or rebate may be offered to consumers for the return of spent bulbs

For EPR to be institutionalized, a legislative framework should be established and the roles of each agency be defined. In addition, the following should be set:

- Appropriate recovery targets for spent bulbs
- Level of the advance disposal fees and deposits/rebates/discounts for consumers. In particular it is necessary to determine whether fixed values will be set, or whether these are allowed to vary with market costs of waste handling and disposal. In addition, it may be necessary to study how the disposal fees affect the purchasing behavior of consumers.
- Scheme for accrediting third parties involved in the EPR system
- System for handling orphan wastes

A pilot program on EPR should be established through the government Procurement Office. Such a scheme will make use of centralized purchasing to acquire new bulbs from supplier, to collect spent bulbs from various units that they serve, and to contract waste handling and treatment services for these wastes. The only element that needs to be added is an advance disposal fee, to be charged to the expense of each requisitioning office or unit, every time fluorescent lamps or bulbs are ordered. The proceeds from these fees can be kept in a fund which is used to cover end-of-life handling and disposal costs.

ANNEX 1


SUMMARY OF REGULATIONS AND REQUIREMENTS FOR GENERATORS OF LAMP WASTES

Requirements	Small Quantity Generator	Large Quantity Generator
Quantity Limits	<100 pieces per year or <300 lighting fixtures	≥100 pieces per year or ≥300 lighting fixtures
HW ID Number	Not required	Required
On-site accumulation quantity	<100 pieces per year	No limit
Accumulation time limits	< One year	< One year
Storage requirements	Basic requirements for packaging	Full compliance for packaging, labeling, containers, and storage
Transport Requirements	Registered transporter	Registered transporter
Off-site management of waste	Permitted facility	Permitted facility
Mercury Management Plan	Not required	Required
Manifest	Not required	Required
Reporting	Not required	Required
Personnel Training	Not required	Required
Emergency Preparedness and Contingency Plan	Observe precaution	Required to submit plan to EMB

PROCEDURAL GUIDELINE ON MERCURY-CONTAINING LAMP WASTE MANAGEMENT

**ANNEX 2
SAMPLE ELECTRICAL PERMIT**

DPWH FORM NO. 96002 E



Republic of the Philippines
City Engineering Department
OFFICE OF THE BUILDING OFFICIAL
City of Puerto Princesa
AREA CODE 5316-L

APPLICATION FOR ELECTRICAL PERMIT
(ACCOMPLISHMENT IN PRINT AND IN DUPLICATE)

APPLICATION NUMBER

DATE APPLICATION FILED

DATE OF PROPOSED START OF INSTALLATION

EXPECTED DATE OF COMPLETION

BOX 1 (TO BE ACCOMPLISHED BY A DULY QUALIFIED ELECTRICAL PRACTITIONER)				
NAME OF OWNER/APPLICANT	LAST NAME	FIRST NAME	MIDDLE NAME	TIN:
				TEL/FAX NO.:
ADDRESS	NO.	STREET	BARANGAY	CITY/MUNICIPALITY
LOCATION OF INSTALLATION	NO.	STREET	BARANGAY	CITY/MUNICIPALITY
SCOPE OF WORK:				
<input type="checkbox"/> NEW INSTALLATION	<input type="checkbox"/> ADDITION OF		<input type="checkbox"/> OTHERS (SPECIFY)	
<input type="checkbox"/> ANNUAL INSPECTION	<input type="checkbox"/> REPAIR OF			
	<input type="checkbox"/> REMOVAL OF			
TYPE OF OCCUPANCY OR USE				
<input type="checkbox"/> A. RESIDENTIAL DWELLING	<input type="checkbox"/> E. BUSINESS & MERCANTILE		<input type="checkbox"/> I. ASSEMBLY OCCUPANT LOAD OR MORE	
<input type="checkbox"/> B. RESIDENTIAL, HOTEL, APARTMENT	<input type="checkbox"/> F. INDUSTRIAL		<input type="checkbox"/> J. ACCESSORY	
<input type="checkbox"/> C. EDUCATION AND RECREATION	<input type="checkbox"/> G. STORAGE & HAZARDOUS		<input type="checkbox"/> K. OTHERS (SPECIFY)	
<input type="checkbox"/> D. INSTITUTIONAL	<input type="checkbox"/> H. ASSEMBLY OTHER THAN GROUP I			
NUMBER OF OUTLETS				
<input type="checkbox"/> LIGHT	<input type="checkbox"/> SPO. COOKING UNIT	<input type="checkbox"/> TOGGLE SWITCH	<input type="checkbox"/> FA DETECTORS	
<input type="checkbox"/> CONVENIENCE/RECEPTACLE	<input type="checkbox"/> SPO. WATER HEATER	<input type="checkbox"/> BELL/BUZZERS	<input type="checkbox"/> OTHERS (See Attached List)	
<input type="checkbox"/> SPO. AIRCON	<input type="checkbox"/> SPO. WATER PUMP	<input type="checkbox"/> PUSH BUTTONS		
BOX 2 (PROFESSIONAL ELECTRICAL ENGINEER WHO SIGNED AND SEALED PLANS AND SPECIFICATIONS)				
NAME:	PRC REG. NO.:		VALIDITY:	
ADDRESS:	TEL/FAX NO.:			
PTR NO.:	DATE ISSUED:	PLACED ISSUED:		
SIGNATURE:	DATE ISSUED:	TIN:		
BOX 3 (ELECTRICAL CONTRACTOR-200 AMPERE MAIN AND ABOVE)				
NAME:	PCAB LIC. NO.:	(SPECIALTY ELECTRICAL)		
ADDRESS:	VALIDITY:	TEL/FAX NO.:		
BOX 4 (PERSON IN-CHARGE OF INSTALLATION)				
<input type="checkbox"/> PROFESSIONAL ELECTRICAL ENGINEER		<input type="checkbox"/> REGISTERED ELECTRICAL ENGINEER		<input type="checkbox"/> REGISTERED MASTER ELECTRICIAN <small>(Not Exceeding 600 Volts & 500 KVA)</small>
NAME:	PRC REG. NO.:		VALIDITY:	
ADDRESS:	TEL/FAX NO.:			
PTR NO.:	DATE ISSUED:	PLACED ISSUED:		
SIGNATURE:	DATE ISSUED:	TIN:		
BOX 5 (OWNER/AUTHORIZED REPRESENTATIVE)				
NAME:	SIGNATURE:	TIN:	CTC NO.:	
			DATE ISSUED:	
			PLACE ISSUED:	
BOX 6 (TO BE RECEIVED BY RECEIVING/RECORDING SECTION)				
ELECTRICAL PLANS & SPECIFICATIONS (5 SETS)		RECEIVED BY:		
		Signature Over Printed Name		
		DATE RECEIVED:		

ANNEX 3
HAZARDOUS WASTES LABEL FOR MERCURY CONTAINING LAMP WASTES

HAZARDOUS WASTES		
Waste Information	HW Class	
	HW Description	
	HW Number	
	Characteristics	
	Form	
	Volume	
	Packaging Date	
	Shipping Date	
Container Information	Waste Transport Record Number	
	Capacity	
Generator Information	Material	
	ID Number	
	Name	
	Address	
	Telephone Number	
	Fax Number	
	Name of HWMS	

Minimum size: 20 cm x 30 cm

Color: Yellow for the background and black for the text

ANNEX 4
PLACARD FOR MERCURY-CONTAINING LAMP WASTES



- Minimum size: 25 cm x 25 cm for vessels, containers, and tanks
30 cm x 30 cm for conveyance vessels, containers, and tanks
- Basic shape: Square rotate 45 degrees to form a diamond: At each side, a parallel line is drawn to form inner diamond, 95% of the outer diamond
- Color: Black and white



Mercury-Containing
**Lamp Waste
Management**

A PROCEDURAL GUIDELINE



WARNING:
CONTAINS MERCURY

**Philippine Efficient Lighting Market Transformation
Project**

- Project Management Office (PELMATP-PMO)

Department of Energy

3rd Floor NPTL Building, Energy Center, Merritt Road
Fort Bonifacio, Taguig City, Philippines

Telephone Numbers: (632) 840-1401 to 21 local 364

Fax Number: 840-2093

Website: <http://pelmatp.doe.gov.ph>

<http://www.doe.gov.ph>



Environmental Management Bureau

Hazardous Waste Management Section

DENR Compound, Visayas Avenue, Diliman, Quezon
City

Telephone Number: (632) 927-1517 or 18

Fax Number: 927-1518

Website: <http://www.emb.gov.ph>





Mercury-Containing
**Lamp Waste
Management**



A PROCEDURAL GUIDELINE