D. 5. Operations Plan

Fluorescent and Mercury Lamp Processing and Recovery

Since the date of the acquisition of AERC by Clean Earth, LLC in March of 2017 the West Melbourne facility discontinued the operation of the LSS1 for processing lamps. In September of 2018 the facility initiated partial closure to remove the LSS1 unit. The facility is a universal waste handler without processing or recycling activities.

Fluorescent Lamp

The sources of these spent fluorescent lamps include households, schools, commercial and industrial sites, and the manufacturers of these lighting components. This operation involves lamps that have been transported to the facility in accordance with local, state and federal regulations. The containers are then off-loaded from the vehicles and staged.

Operations Procedures for Loading/Unloading, Handling and Storage of Mercury Lamps at AERC.

Loading/Unloading Procedures-

Lamps are delivered to the plant in small trucks, bobtails, 27' and 48' semi-trailers. Plant workers unload the boxes or other lamp containers onto pallets. Work gloves and eye protection must be worn, as there may be pieces of glass from breakage in shipment. Depending on how customers pack lamps and how the trucks are loaded there may be as much as 5% breakage in a load. If breakage exceeds this amount the customer and/or transporter will be notified so steps can be taken to minimize breakage. Most of the time the breakage is contained within the lamp boxes.

During the loading/unloading, most breakage or spillage of lamps is contained on the truck deck, the loading dock, or floor. Any breakage that may fall to the ground is cleaned in accordance with the procedures established, including use of brooms, mops, buckets, dustpans, vacuum systems, etc. If breakage is excessive, the work area is monitored, and cleanup continues with appropriate respirators and personal protective equipment.

Broken Lamp Clean-up Procedure-

Within 5-minutes from the time when lamps are discovered broken, clean-up shall be undertaken by plant operators as follows:

The operator shall collect any breakage, using a broom or dust mop and dustpan, or vacuum system, removing large pieces carefully. Large pieces of lamps should be collected and containerized as soon as possible. Very small size breakage and powder residues are swept. up.
Handling and Storage Procedures-

Lamps are not left outside, unless they are inside closed trailers. This could occur if the trailer returned to the facility after receiving hours and couldn't be unloaded immediately. The trailers are secured via padlock if they cannot be immediately unloaded.

Once inside the building, the lamps are placed on the floor with the existing inventory. From this staging location the lamps are moved by hand, pallet jack and forklift directly to the storage area. Sometimes the lamps must be unpackaged and sorted and repackaged/consolidated before storage.

For fire safety and health reasons, there is a no smoking policy in the building. The plant is equipped with a sprinkler system. No open flames are allowed, except in a controlled manner, such as for maintenance.

High Intensity Discharge (HID) Lamps

The West Melbourne facility no longer performs this operation. HID lamps are sent to an alternate facility for processing.

Mercury Containing Device Processing

The offsite mercury retort systems which AERC utilizes are designed to thermally recover and purify, through a heating and distillation process, mercury from various devices, process materials and manufactured items, debris, equipment or other materials that contain or have become contaminated with mercury.

The permitted AERC TSD in Allentown, PA uses two retort units to heat devices, such as thermometers, switches, regulators, and other materials, such as precipitates, filter media, powders, soils, and the like, which contain mercury. The product from these systems is commodity grade mercury which is resold back to market. The cleaned glass and metal is shipped off-site for recycling.

Receipt of materials

Materials are received at the West Melbourne facility from generators in drums or other shipping containers. Upon receipt these materials are separated into similar components (e.g. switches, regulators, thermometers, etc.), some of which need to be disassembled before they can be processed. Some of the items contain materials which cannot be placed in the retort unit. These include rubber gaskets, plastic parts or other organic materials. Thus, in some cases, there is a significant reduction (approximately 50-80%) in volume by removing the non-hazardous components before retort. Other items may be placed in the retort whole and when the mercury is removed they come out intact.

Once separated, materials are containerized for future shipment to the AERC, PA facility or an alternate approved facility for retorting.

Lighting Ballasts

AERCoffers service to its customers for the effective handling of non-leaking PCB and non-PCB ballasts.

Wastes are received in containers ranging from fiber cartons and poly pails to 55-gallon steel drums. AERCconducts visual QC of these waste containers, repackages and consolidates these items as needed for shipping purposes. Only intact, non-leaking ballasts are received. Once accumulated, wastes are shipped to an approved offsite ballast recycler.

Ballasts are shipped using standard shipping documents as “Non-Leaking PCB Ballast” or “Non-PCB Ballast” a Certificate of Recycling can be provided for customer records.

Used Electronic Scrap

AERChas developed a used electronic equipment management program as a service to its customers. These customers include a wide variety of generators, including, but not limited to retailers, manufacturers, as well as non-profit organizations and government institutions.

AERC's program has been designed to transport and collect whole, intact, electronic equipment. Electronic components are evaluated for reuse, rebuilt for reuse or disassembled or demanufactured by AERC for component resale and recycling. The computers and CRT's collected and shipped by AERC are identical to new computers being offered by establishments for sale or resale.

Although some disassembly may take place at the facility, the AERC West Melbourne facility primarily accumulates the used electronic equipment for shipment offsite to an AERC electronic scrap processing facility or to alternate approved electronic equipment recycling facilities.

AERC does not allow, authorize or approve of land disposal of any hazardous components generated through the electronic equipment demanufacturing processes.

AERC manages all used electronic equipment, whole and intact, and is not the ultimate recycling facility. AERC sends equipment to recycling facilities, which may, in-turn offer it for direct consumer resale.

AERC has interpreted that the products it collects are not waste. The decision-making for determining which components are offered for resale and which are demanufactured is not made by AERC, buy made rather, by the recycling/resale facilities using technical evaluation methods.

Components are shipped using standard Bill-of-Lading shipping documents are "Used Electronic Equipment for Recycling, Reuse or Resale". A Certificate of Recycling can be provided for customer records.

Battery Program

AERCin its continuing Universal Waste Program development, provides a necessary service for battery recycling.

Small quantity generators do not have the logistical capability of getting the batteries to the ultimate battery recycling facilities. Therefore, AERC created a service that includes but is not limited to various types of batteries such as lead acid, nickel-cadmium, alkaline, lithium and mercury batteries. AERC has established shipping and packaging guidelines for its customers to ensure that batteries are packaged and transported according to chemical compatibility and USDOT standards.

Once received at AERC, all batteries are inspected, unpacked and sorted into categories according to the final TSD or recycling facility requirements. These materials are repackaged and sent to the ultimate recycling facility. Attached are the specifics of this program.

Battery Processing Descriptions

AERChas developed a comprehensive battery recycling program. AERC provides onsite sorting and repackaging for all battery types. All containers of batteries are weighed, unpacked and sorted by recycling technicians at the Melbourne facility. If necessary, the recycling technicians utilize a computerized database to properly identify individual batteries. All sorted, repackaged batteries are then shipped to offsite, secondary facilities for final recycling. Each permitted recovery/treatment facility is audited and pre-approved by AERC prior to the recycling of any batteries at the facilities.

Battery Categories

AERC accepts the following types of batteries for processing at our approved facilities. Categories of waste have been designated for billing and packaging purposes. Batteries can be commingled within a category; however, categories should not be mixed.

Category 1 - Lead Acid:
Sealed Lead Acid, car batteries, Gel Cells, forklift batteries, Uninterrupted Power Source batteries

Category 2 - Corrosive Metals:
Alkaline and NiCad (wet and dry), Carbon Zinc (non-mercury), Nickel Iron, Nickel Hydride and Lithium Ion, Zinc Air

Category 3 - Mercury Bearing:
Carbon Zinc, Button Cell, Silver Oxide, Mercuric Oxide

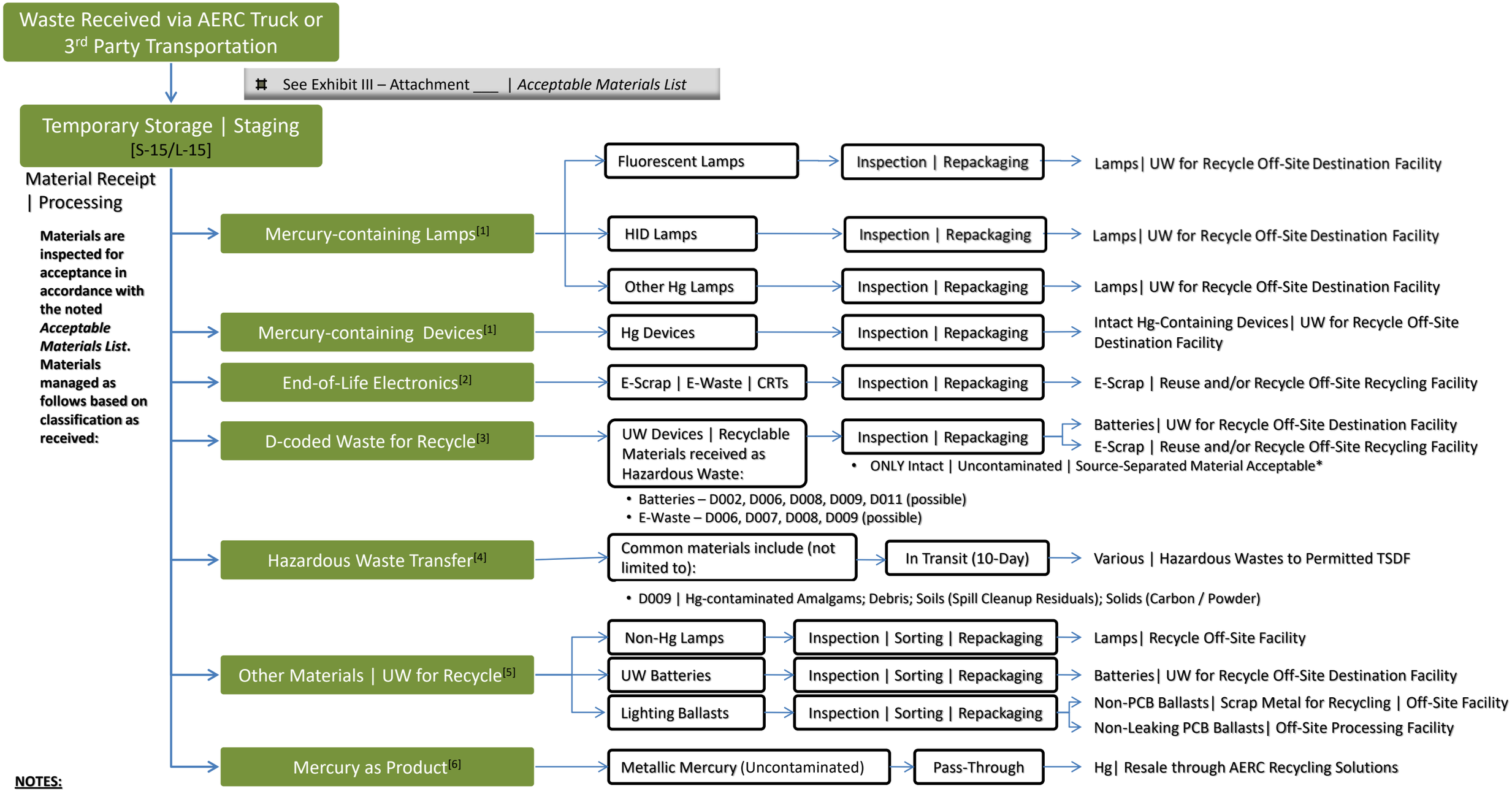
Category 4 - Reactive Metals: Lithium Metal and Magnesium

Ten-Day Transfer Operations

The AERC, West Melbourne facility is set up as a ten-day transfer facility for hazardous wastes under its Florida DEP hazardous waste transporter approval. Wastes that are ultimately destined to a TSD facility may be transported through the AERC, FL facility on an as needed basis. This transfer operation is designed to help organize and provide cost effective logistical operations to clients for those wastes generated in the southeastern portion of the United States that ultimately must be shipped to a TSD facility for acceptance and processing.

Figure D-3: Integrated Process Flow Diagram

AERC | EPA ID No. FLD 984 262 782 | Operating Permit Number: 72959-007-HO



NOTES:

1. Material received and managed as Universal Waste in accordance with LQUWH requirements.
2. Material received as non-regulated solid waste for recycle.
3. Generator manifested material (D-coded hazardous waste) received as intact devices – managed by AERC for recycle. Includes those materials that meet the definition as either universal waste, e.g., batteries, and/or non-regulated solid waste when recycled, e.g., electronic scrap/CRTs. Materials that meet the definition of characteristic hazardous waste are not received by AERC – managed only as 10-Day material. * Manifest terminated | Documentation of intended recycle noted.
4. Hazardous waste managed in accordance with Transporter permit as 10-day Transfer material.
5. Includes: UW Batteries | Non-Hg Lamps | PCB and non-PCB Ballasts.
6. Pure Mercury (Hg) – salable product received as commercial grade material.