



## Appendix EPS 60-T2 “Special Wastes” Management

### Introduction

This Appendix describes the proper handling and disposal practices for each of the special wastes present at Jefferson Lab.

- ❖ empty and full aerosol cans
- ❖ asbestos-containing waste materials
- ❖ non-recyclable batteries
- ❖ empty liquid containers
- ❖ miscellaneous liquid wastes
- ❖ gas cylinders
- ❖ oil-contaminated waste
- ❖ PCB-contaminated wastes
- ❖ freon and other refrigerants
- ❖ solid paint
- ❖ other regulated materials

Note that

- many expired chemicals,
- unusable aerosol cans, and
- partially-full aerosol cans

must be disposed of as hazardous waste through the Hazardous Waste Coordinator (HWC). For information or to arrange special waste pickup, contact the HWC at ext. 7039.

If you are unsure about the classification of a waste after reviewing *Appendix EPS 60-R1 Know Your Waste* and this Appendix, contact your division ESH&Q staff for assistance with identifying appropriate disposal requirements.

For items that may be radioactive, refer to *6760-T3* for management practices.



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## Aerosol Cans

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Aerosol cans include any type of container that is pressurized with a gas propellant. Pressurized containers such as aerosol cans may not be disposed in a landfill until they are properly processed.

The HWC, who can be reached at ext. 7039, is responsible for collecting, processing, and disposing of aerosol cans.

### Generator

- ❖ Use aerosol cans until they are empty or otherwise unusable.
- ❖ Deposit **empty** aerosol cans in containers labeled "Aerosol Cans Only" that are located in the Test Lab, Bldg. 16, Bldg. 87, Experimental Halls, and Experimental Equipment Lab.
- ❖ Turn over unusable cans to the HWC at the time of the annual Chemical Inventory. At the time of the inventory, the HWC also accepts unusable and expired chemicals and unmixed epoxies. Contact the HWC for assistance at anytime.

### HWC

- ❖ Use proper tools and PPE when depressurizing aerosol cans; collect the liquid contents; and, dispose of it as a hazardous or special waste as appropriate for the material.
- ❖ Collect the empty cans, verify that no free liquid remains in the cans by discharging into a drum and dispose of the empty cans as refuse, crushing as possible.

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## Asbestos-Containing Waste Materials

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Jefferson Lab possesses limited quantities of asbestos-containing materials in the Test Lab and in some cooling towers. The Asbestos Program Manager shall ensure that all work on asbestos-containing materials is conducted by licensed subcontractors. The subcontractor will be responsible for removal and disposal of the waste, according to applicable federal and state requirements. Questions concerning asbestos-containing material should be directed to the Asbestos Program Manager at ext. 7531.

## Batteries (recyclable and non-recyclable)

Your ESH&Q staff will assist you in recycling lead-acid

Batteries that do not meet the guidelines for recycling (as provided in [Appendix EPS60-R2 Disposal Practices for Recyclable Materials](#)) may also be restricted from landfill disposal because they may contain lead, cadmium, and/or mercury. They shall be segregated as follows.

**Table 1: Battery Disposal**

Dispose as Refuse or Recycle	Provide to HWC to either recycle or dispose as Hazardous Waste
Alkaline batteries (AAA, AA, C, D etc.) [Can be recycled at local recycling centers]	Batteries containing Mercury
	Nickel-Cadmium (NiCad) batteries
	Rechargeable batteries (at completion of life)
Lithium batteries that are $\leq 3$ volts (such as camera batteries)	Lithium batteries $> 3$ volts

If you have questions or concerns regarding battery disposal, contact:

- your division ESH&Q staff for guidance or
- the HWC at ext. 7039.

### Generator

Contact the HWC to set up collection area.

- ❖ Determine battery constituents from the Material Safety Data Sheet for that battery or its label.
- ❖ Segregate batteries by type (e.g., lead/acid and lithium).
- ❖ Accumulate batteries in a secure leak-proof container which will prevent moisture from entering. Do not use the same container to store different kinds of batteries.
- ❖ Label the container with the battery type and the accumulation start date.
- ❖ Upon filling your storage area or after (at most) six months has elapsed, contact the HWC for instructions on necessary actions.

### ESH&Q Staff/HWC

- ❖ Assist staff in proper handling and disposal.
- ❖ Batteries with potentially toxic constituents, if not acceptable for recycling or reclamation, shall be disposed of through the HWC. The batteries will be sent to a permitted treatment, storage, or disposal facility.
- ❖ Ensure that packaging and labeling for shipment is provided according to regulations.



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## Empty Liquid Containers

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An empty liquid container is defined as any container that held hazardous material and contains:

- ❖ Liquid residue less than 1 inch and less than 3% of the container volume,  
or
- ❖ Only dried, solid residue.

Containers that do not conform to the above guidelines are not considered empty and may not be disposed as empty containers. Turn them over to the HWC during the next expired/unused chemical roundup. Contact the HWC at ext. 7039 for assistance.

Requirements for disposal of empty containers are given below.

### Generators

- ❖ Use the material in the container for its intended purpose until no free liquid remains in the container.
- ❖ Do not allow greater than 1 inch of liquid material to solidify in a container for the purpose of disposal.
- ❖ Prevent moisture from collecting in the containers if stored outdoors.
- ❖ Once the container is confirmed empty, remove or completely obliterate all container labels and dispose as refuse or as recyclable material as appropriate.
- ❖ Drums or other bulk containers shall not be disposed until emptied, properly cleaned, opened at both ends and crushed. Pesticide containers and most other chemical containers shall be triple rinsed before disposal. (9 VAC 20-80-680)
- ❖ Dispose of drums through the HWC.

**Remember:** Changes in temperature can result in drawing atmospheric moisture into drums, which then condenses within the drum.

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## Miscellaneous Liquid Wastes

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The following liquid wastes are not considered hazardous waste, but may have toxic properties, AND may NOT be disposed of through the sanitary sewer system. They shall be disposed of through the HWC as non-hazardous waste.

- ❖ Propylene glycol (anti-freeze)
- ❖ Hydraulic fluid
- ❖ Latex paint
- ❖ Some photo-finishing chemicals
- ❖ Liquid soaps and cleaners (as labeled)

### Generators

- ❖ Segregate the above wastes by waste type.
- ❖ Place them in a tight, leakproof container.
- ❖ Label them with the material identity.
- ❖ Contact the HWC for disposal.

### HWC

- ❖ Explore opportunities to recycle the liquid wastes, either on-site or at approved recycling facilities.
- ❖ If recycling is not practical, dispose of the liquid wastes at facilities that are permitted by federal and state regulatory agencies.
- ❖ Ensure that the material meets disposal facility waste profile characteristics.



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## Gas Cylinders

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Gas cylinders are serviced and most are leased under subcontract.

- ❖ Large cylinders are not discarded when they are empty but collected and refilled by suppliers outside of Jefferson Lab.
- ❖ Small cylinders that will not be refilled may be handled by:
  - Using all product in the cylinder until it is sufficiently emptied.
  - Collecting the cylinders in specified areas in the end stations, the EEL, and the Test Lab.
  - Line Management shall be responsible for ensuring that the cylinders are removed to the Forestry building collection point.
  - Facilities Management staff will be responsible for removing the valve core of the bottles using the appropriate tools and PPE.
  - After it has been verified that the cylinder no longer contains fluid or gas:
    - the cylinder may be recycled as scrap metal by Facilities Management, and
    - the valve core may be discarded as trash.

Refer to Chapter **6150** *Compressed Gases* for more information.

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## Oil-Contaminated Wastes

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Oily waste is defined as waste that is composed of or mixed with a petroleum product but not mixed with a hazardous waste. Oily waste that is mixed with a hazardous waste is classified as a hazardous waste. Oily waste at Jefferson Lab may fall into one of these categories: used oil, oil-contaminated debris, oil-contaminated soil, or machine shop waste oil.

The used oil program is described in [Appendix EPS 60-T1 Used Oil Disposal](#).

Used oil that may be activated shall be given to RadCon for disposal.

### Machine shop waste

Glycol or paraffin-based oils, such as cutting oils, are handled separately. This material is collected in a special storage area in the EEL Machine Shop.

- ❖ It shall be secondarily contained.
- ❖ The container shall be properly labeled.
- ❖ The HWC shall be contacted for sampling and special waste handling and disposal.

### Oil-contaminated debris

Oil-contaminated debris consists of material that contains or is saturated with residual oil. This includes, but is not limited to, rags, empty oil or grease containers, oil filters, metal shavings coated with cutting oil, floor sweeping compound, and absorbent from oil spill cleanups.

### Generator

- ❖ Drain and collect as much residual-free liquid oil as possible from the debris and dispose of it as used oil.
- ❖ If the remaining oily material may drip oil, add a small amount of absorbent or place on absorbent material to prevent release.
- ❖ Place the debris in a sealed container, label with the material identity, and accumulate until ready for disposal.
- ❖ When the material is ready for disposal, contact the HWC for pickup.

### HWC

- ❖ Dispose of wastes at a facility permitted by federal or state regulatory agencies.
- ❖ Ensure the material meets the facility waste profile characteristics.



## **Oil contaminated soil**

Soil may become contaminated from chronic oil leaks that gradually build up over time, or suddenly from an oil spill. If oil is spilled on soil or you suspect petroleum contamination in an excavation, the soil must be analyzed to determine proper handling requirements. Review the following procedure for handling requirements.

### **Generator**

- ❖ Keep rain or other water off the soil area if possible. Tarps or polyethylene sheeting may be useful.
- ❖ Cover and contain the contaminated soil in a drum or other suitable bulk container such as a roll-off box.
- ❖ Contact a certified laboratory to analyze the soil according to the requirements of 9 VAC 20-80-700.
- ❖ Mark the box to identify the contents.
- ❖ Contact the HWC for pickup.

### **HWC**

- ❖ Perform a soil analysis to determine proper disposal according to 9 VAC 20-80-700.
- ❖ If the material may be considered for fill material, Facilities Management must give approval before it can be used on site. Fill material shall include only rocks, brick, block, dirt, excavated soil, broken concrete and road pavement (9 VAC 20-80-60).
- ❖ If the material may not be used as fill, your Division ESH&Q officer must be contacted for approval of off-site facilities for disposal.
- ❖ If the soil contains any free liquid, or enough moisture to accumulate during shipment to an off-site facility, solidify it with absorbent or transport it in a sludge box.
- ❖ Use the appropriate Waste Manifest as the shipping document.



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## PCB (Polychlorinated Biphenyl) Contaminated Waste

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PCBs can be found in older transformers, capacitors, old gear boxes, other electrical components, and machine shop type of equipment. All transformers on site have either never had PCBs (and are labeled PCB-free) or have been purged to remove any PCBs. PCBs are classified as a carcinogen by the EPA. If any PCB-containing material is found, contact your division ESH&Q staff for assistance.

When disposing of these types of equipment, ESH&Q staff will have to certify them as PCB-free.

- ❖ Solid wastes, including spill cleanup or excavations, that contain 50.0 ppm or more of PCB are regulated by the EPA and must not be disposed without specific EPA approval.
- ❖ Solid wastes that contain between 1.0 ppm and 50.0 ppm PCB must be disposed at a specially permitted landfill. (9 VAC 20-80-650)
- ❖ Different levels of PCB content have different labeling requirements. Contact your ESH&Q staff for help.
- ❖ Do not handle PCB-contaminated materials unless you are specifically authorized by ESH&Q staff. The HWC will coordinate any collection and/or disposal requirements.
- ❖ If you have a device or piece of equipment tested for PCBs and none are found, affix a suitable label to the device that indicates the results. Contact your ESH&Q staff for assistance.



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## Refrigerant

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General amounts of refrigerant are used around the Lab for experimental target fluids. As long as the refrigerant is not used in a cyclic refrigeration process, the handling regulations do not necessarily apply. However, Jefferson Lab is a good steward of the environment and, therefore, expects prudent and responsible management of these substances. Equipment should be designed to facilitate removal of gases for reuse. Cross-contamination should be minimized. When necessary, refrigerant reprocessing after recovery should be done to purify and reuse the gas.

Any equipment such as air conditioning units or refrigeration equipment must have all refrigerant removed and captured for recycling by a licensed subcontractor prior to disposal. Subcontractors are specially trained and licensed under federal and state regulations to perform this task. Do not attempt to discharge or collect the materials yourself. Contact the Facilities Management Service Desk at ext. 7400 for assistance.

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## Solid Paint

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Solid paint may be disposed of in a permitted landfill provided it contains no free liquids and is not a characteristic hazardous waste as defined in [Appendix EPS61-R1 Know Your Waste](#)

### Generator

- ❖ Contact the HWC to review the paint contents and arrange pickup.
- ❖ Dispose of liquid paint as appropriate. Do not intentionally solidify paint for the purpose of disposal. (Try to find another person that can use the extra materials.)
- ❖ Contain solid paint in the original container or can if it is evident that the paint is dry.
- ❖ Verify that the paint is completely solid prior to disposal. If there is a slight amount of liquid in the can, mix with sand or oil-dry to absorb the liquid.
- ❖ Label the container.

### HWC

- ❖ If the solid paint has a solvent odor or contains any metals listed in the Toxic Characteristic Leaching Procedure (TCLP) (see [Appendix 6761-R1 Know Your Waste](#)), it should be tested for the TCLP and Flash Point to determine whether it is hazardous.
- ❖ If waste is determined not to be hazardous, the solid paint may be disposed in a permitted landfill.
- ❖ Solid paint that is a characteristic hazardous waste (as determined by the TCLP or flash point tests) must be disposed as a hazardous waste.