

Subject:	Photon Sciences Environmental Awareness for Electrical and Mechanical Technicians (Course Code PS-ENV-ELECMECH)						
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[Revision Log](#)

Instructions:

Read the material below and then close this document. You will receive credit for training through the BNL training system.

Course Objective:

Significant environmental aspects are associated with mechanical and electrical work conducted within the Photon Sciences Directorate. This course has been designed to provide you with the job-specific information that you need to know to protect the environment and to meet Laboratory and Government regulations for handling the waste streams produced by these activities. The contents of this training have been extracted from the Photon Sciences Policies and Requirements Manual (PRM) and BNL Subject Areas.

Description of Significant Environmental Aspects: Development and maintenance activities on accelerator systems and electrical systems in the Photon Sciences Directorate produce four types of waste that must be controlled: Resource Conservation and Recovery Act (RCRA) hazardous waste, Polychlorinated biphenyl (PCB) contaminated waste, universal waste, and industrial waste. Hazardous materials may not be disposed of to sinks or floor drains without approval. Because of the risk of spills, use of hazardous materials requires the need for extra precautions.

Training Requirements: Supervisors are required to read this form and to take RCRA Hazardous Waste Generator training if they have employees assigned to them who generate hazardous wastes. Mechanical and electrical technicians and engineers are required to read this form.

Operational Controls:

RCRA Hazardous Waste:

- Solvents or solvent-contaminated waste (like rags);
- Corrosive ($\text{pH} \leq 2$ or ≥ 12.5) waste such as used ryd-lyme solution (unless kept for reuse) or low pH ryd-lyme rinses;
- Toxic metals such as mercury, lead and silver; materials contaminated with those metals and electrical components that contain those metals (i.e. mercury switches);
- Non-empty aerosol cans;
- PCB contaminated oil or contaminated rags and absorbents;

RCRA hazardous wastes must be containerized, labeled with a red hazardous waste label and kept in a Satellite Accumulation Area (SAA) until the job is complete, or the container is full. Then, a non-radioactive waste control form shall be filled out that describes the waste, and the waste must be brought to the 90-day storage area by a staff member that has completed the Lab's RCRA Hazardous Waste Generator training. Aerosol cans, empty or non-empty, shall be disposed of in the container located by the NSLS Stockroom.

PCB Contaminated Waste:

- Fluid-filled capacitors and transformers manufactured prior to 1979 should be managed as PCB waste unless analysis proves otherwise.

Contact a member of the PS ESH staff if you identify an article that is suspected to contain PCBs. Articles known or suspected to be PCB contaminated shall be labeled with a PCB label. If identified for disposal,

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they shall be de-energized and containerized if leaking. The out-of-service date shall be indicated on the label. The article must be brought to the 90-day storage area by a staff member that has completed the Lab's RCRA Hazardous Waste Generator training. PCB waste must be picked up by Waste Management within 30 days from the out-of-service date (or date it was first generated). There is no satellite accumulation of PCB waste. Also, the door to the 90-day storage unit must be labeled as containing PCB waste when PCB waste is placed inside.

Universal Waste:

Batteries (other than alkaline batteries, which can be disposed of in the trash) are collected by type in containers located in or near the 90-day areas. Be sure to place your batteries in the correct container for its type. If no container is available, contact the PS Deputy Safety Officer.

Industrial Waste:

Industrial Waste refers to non-RCRA hazardous waste that is banned from disposal into the regular trash by State and Federal regulations. Examples are waste oil, oily rags and non-PCB oil filled capacitors.

- Oil: Collected in the waste oil drum (located near the NSLS west roll-up doors).
- Oily rags: Collected in a fireproof container. The contents of the container shall be bagged and identified with a green non-hazardous waste label, and brought to the 90-day Storage Area. A non-radioactive waste control form shall be filled out describing the waste.
- Non-PCB Capacitors: Containerize and label with a green non-hazardous waste label, and bring to the 90-day Storage Area. A non-radioactive waste control form shall be filled out describing the waste.

Miscellaneous Information:

- Lead scrap and solder dross shall be collected for recycling. Collect lead separately from other metals.
- Use of degreasing or other chemical products must be assessed by the PS ESH Staff to determine whether they contain chemicals that will cause a waste concern.

Response to Leaks/Spills: If a spill of oil or other chemical product occurs, take prompt action to prevent it from discharging to floor drains or sinks if you are familiar with the hazards involved and feel comfortable doing so. If the spill is in Building 725, contact the NSLS Control Room Operator (x2550). Use the spill kits kept in the area. Any discharge to a drain or to the outdoors must be reported to the Lab emergency response number (x2222) and, for those in Building 725, to the NSLS Control Room Operator (x2550). If a spill of PCB containing material occurs (blown light ballast or leaking PCB article), secure the area and call x2222 and, for those in Building 725, x2550.

Your Role and Responsibility: You are responsible for the proper management of your waste and to take prompt action in the event of a spill. If you are ever in doubt regarding the proper course of action, contact your supervision or a member of the PS ESH Staff.

Potential Regulatory and Environmental Impacts: Mismanagement of waste can result in violations of RCRA hazardous waste regulations. Discharge of oils and other chemicals to drains can result in violations of BNL's sanitary release limits. Both can ultimately result in contaminated soil or groundwater. BNL is subject to fines and penalties for such violations, and is responsible for the clean-up costs associated with any required remediation. BNL has also suffered poor public perception due to poor waste management practices and contamination events in the past. Proper management of waste and spills will help us maintain a positive relationship with regulators and the public.

Pollution Prevention and Waste Minimization: Cooperate with recycling efforts by collecting all scrap metal that you produce for recycling. Empty aerosol cans should be deposited into the dedicated empty aerosol-can recycling container (located by the NSLS stockroom in Building 725). Replacement of PCB capacitors with non-PCB containing capacitors reduces the risk of spills and mismanagement of waste.

The only official copy of this file is the one on-line in the Photon Sciences Training website. Before using a printed copy, verify that it is the most current version by checking the document effective date on the PS Training website.

Brookhaven National Laboratory/ Photon Sciences Directorate

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Please offer any suggestions and comments to your supervision about pollution prevention and waste minimization in order to help reduce disposal costs and achieve waste minimization goals.

