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**Polychlorinated Biphenyls Program**

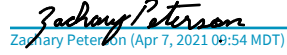
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**UNIVERSITY OF NEW MEXICO**  
**Department of Environmental Health and Safety**



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## ACRONYMS & DEFINITIONS

CWPR	Chemical Waste Pickup Request
EHS	Environmental Health and Safety
EPA	Environmental Protection Agency
FM	Facilities Management
kg	Kilogram(s)
PCB	Polychlorinated Biphenyls - In general, PCBs are a subset of the class of synthetic organic chemicals known as chlorinated hydrocarbons that include 209 different arrangements of chlorine atoms on a biphenyl molecule (two benzene rings joined together by a carbon-carbon bond). Between 1926 and 1977, PCBs were manufactured for use in products such as dielectric fluids which required low electrical conductivity, high boiling point, high chemical stability, and low water solubility. Some common trade names of PCB-containing fluids are <i>Aroclor</i> , <i>Askarel</i> , <i>Chlorinol</i> , <i>Dykanol</i> , <i>Elemex</i> , <i>Hyvol</i> , <i>Inerteen</i> , <i>Pyranol</i> , <i>Pyrochlor</i> , and <i>Santovac</i> .
PEL	Permissible Exposure Limit
PPE	Personal Protective Equipment
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act

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## 1. PURPOSE

This program contains the requirements for practices designed and implemented to protect employees, students, visitors and the environment from the risks associated with PCBs, and to ensure compliance with all safety, health and environmental requirements as directed by federal, state and local regulations regarding PCBs. During the 1970s, federal legislation mandated the elimination of PCBs from distribution in commerce. To minimize the potential for adverse health effects caused by PCBs and other substances, Congress passed the Toxic Substances Control Act (TSCA), which strictly regulates all aspects of PCB use.

## 2. SCOPE

This program is applicable to all students, faculty, and staff who use or dispose of PCBs or PCB-contaminated items, materials or wastes as a result of University-related activities. The purpose of this program is to enable personnel to recognize those PCB-containing items and PCB-containing wastes that are regulated by law and regulations, and to inform them of procedures to be followed for proper disposal.

The University of New Mexico has assigned the responsibility for management of all PCBs to Environmental Health & Safety (EHS). The primary objectives of EHS's PCB Program are to protect human health and the environment, and to ensure compliance with federal, state and local environmental laws and regulations.

## 3. RESPONSIBILITIES

All personnel who handle PCBs, including PCB-containing equipment and PCB-containing waste, must read, understand, and comply with the requirements of this program. Other related information is contained in the EHS programs entitled Hazard Communication, Hazardous Chemical Waste, and for research laboratories the UNM Chemical Hygiene Plan.

Specific responsibilities regarding PCBs are as follows:

### 3.1. Environmental Health & Safety (EHS) is responsible for:

- Writing and maintaining this program;
- Communicating with regulators about disposal or spill issues;
- Coordinating all sampling, testing, spill cleanup and disposal issues; and,
- Coordinating the pickup and disposal of PCB-containing equipment or PCB-containing waste.

### 3.2. Other UNM Students, Faculty, and Staff are responsible for:

- Notifying EHS immediately of any identified or suspected releases of PCBs;
- Notifying EHS prior to any movement of PCB-containing electrical equipment;
- Safely shorting out all capacitors after disconnecting them;

- Checking PCB-containing equipment or potentially PCB-containing equipment for conditions that may indicate a current or forthcoming leak, such as oil saturated joints or connections and/or drip spots below joints or connections;
- When a PCB-contaminated item is removed from service and is intended for disposal, notifying EHS immediately since EPA requires it to be disposed of within one year. The time limit begins on the date that the item was declared "destined for disposal" and the actual final disposal date at an EPA-permitted disposal facility.
- Immediately reporting to EHS any abandoned or apparently abandoned PCB-containing items such as fluorescent lamp ballasts or fixtures with tar-like staining, oil filled capacitors or transformers, or unlabeled containers of oil.

## 4. DEFINITIONS

Capacitor – A device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows:

- a. Small Capacitor – A capacitor which contains less than 3 pounds of dielectric fluid.
- b. Large High Voltage Capacitor – A capacitor which contains 3 pounds or more of dielectric fluid and which operates at 2000 volts (AC or DC) or above.
- c. Large Low Voltage Capacitor – A capacitor which contains 3 pounds or more of dielectric fluid and which operates below 2000 volts (AC or DC).

Note: All known large capacitors have been removed from UNM Campus.

Cleanup Site – The areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB remediation waste, regardless of whether the site was intended for management of waste.

Designated Facility – The off-site disposer or commercial storer of PCB waste designated on the manifest as the facility that will receive a manifested shipment of PCB waste.

Excluded PCB Products – PCB materials which appear at concentrations less than 50 ppm.

Fluorescent Light Ballast – A device that electrically controls fluorescent light fixtures and that includes a capacitor containing 0.1 kg or less of dielectric.

Mineral Oil PCB Transformer – Any transformer originally designed to contain mineral oil as the dielectric fluid and which has been tested and found to contain 500 ppm or greater PCBs.

Natural Gas Pipeline System – Natural gas gathering facilities, natural gas pipe, natural gas compressors, natural gas storage facilities, and natural gas pipeline appurtenances.

Non-PCB Transformer – Any transformer that contains less than 50 ppm PCBs; except that any transformer that has been converted from a PCB Transformer or a PCB-Contaminated Transformer cannot be classified as a non-PCB Transformer until reclassification has occurred.



PCB Article – Any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. “PCB Article” includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB Article.

PCB Bulk Product Waste – Waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal was  $\geq 50$  ppm PCBs.

PCB Capacitor – Any capacitor that contains  $\geq 500$  ppm PCBs.

PCB-Contaminated – A non-liquid material containing PCBs at concentrations  $\geq 50$  ppm but  $< 500$  ppm; a liquid material containing PCBs at concentrations  $\geq 50$  ppm but  $< 500$  ppm or where insufficient liquid material is available for analysis, a non-porous surface having a surface concentration  $> 10 \mu\text{g}/100 \text{ cm}^2$  but  $< 100 \mu\text{g}/\text{cm}^2$  as measured by a standard wipe test of a non-porous surface.

PCB-Contaminated Electrical Equipment – Any electrical equipment including, but not limited to, transformers, capacitors, circuit breakers, reclosers, voltage regulators, switches, electromagnets, and cable, that contains PCBs at concentrations of  $\geq 50$  ppm and  $< 500$  ppm in the contaminating fluid. In the absence of liquids, electrical equipment is PCB-Contaminated if it has PCBs at  $> 10 \mu\text{g}/100 \text{ cm}^2$  and  $< 100 \mu\text{g}/100 \text{ cm}^2$  as measured by a standard wipe test of a non-porous surface.

PCB Remediation Waste – Waste containing PCBs as a result of a spill, release, or other unauthorized disposal. Soil, rags, and other debris generated as a result of any PCB spill cleanup.

PCB Transformer – Any transformer that contains  $\geq 500$  ppm PCBs.

Recycled PCBs – Those PCBs which appear in the processing of paper products or asphalt roofing materials from PCB-contaminated raw materials.

Totally Enclosed Manner – Any manner that will ensure no exposure of human beings or the environment to any concentration of PCBs.

Waste Oil – Used products primarily derived from petroleum, which include, but are not limited to, fuel oils, motor oils, gear oils, cutting oils, transmission fluids, hydraulic fluids, and dielectric fluids.

## 5. WHERE PCBs ARE FOUND

PCBs are most often found in oil-filled electrical equipment that was manufactured before 1980. PCBs may also be present in hydraulic fluids, fluorescent lighting ballasts, transformers, capacitors, and other similar devices. Substances that may be regulated by this program include, but are not limited to: dielectric fluids, contaminated solvents, oils, waste oils, heat transfer fluids, hydraulic fluids, paints, caulk, sludge, slurries, contaminated soils, materials contaminated as a result of spills, and other chemical substances, or combination of substances, including impurities and byproducts.

**NOTE:** Since oils are the primary carrier of PCBs, it is recommended that equipment containing an unidentified or unknown oil with unknown characteristics be sampled and tested by EHS, who will coordinate regulatory issues if the

fluid tests positive for PCBs. EHS will also retain the analytical data on file for future reference. PCB waste will usually take one of four physical forms: oils pumped from items such as transformers and power supplies; intact items such as transformers, capacitors and ballasts; leaking items such as transformers, capacitors and ballasts; and PCB-contaminated items such as PPE, rags, and spill cleanup debris.

## 6. HANDLING REQUIREMENTS

Federal law restricts use of PCBs in the workplace and requires very stringent spill cleanup methods which include post-cleanup sampling verification and, in some cases, EPA notification. Take special care to ensure that PCBs (e.g., oil or tar from a ballast, capacitor, or transformer) are not allowed to contact any surface unintentionally. Any surfaces that do come into contact with PCBs must be handled as PCB-contaminated. Do not attempt to clean or remediate a PCB spill or PCB contamination without first contacting EHS at 277-2753.

In general, PCBs can be used only in a totally enclosed manner, i.e., within a sealed unit (e.g., light ballast), with the following exceptions:

- PCBs used in small quantities for research and development if the quantity of PCBs “is originally packaged in one or more hermetically sealed containers of no more than 5 milliliters, and the PCBs are used only for the purposes of scientific experimentation or analysis, or chemical research on, or analysis of, PCBs, but not for research or analysis for the development of a PCB product.”
- Permanent microscopy mounting medium applications, microscopy immersion oil in fluorescence microscopy, optical liquid applications, and analytical reference samples.

Always wear proper personal protective equipment (PPE) when handling all materials used in the maintenance of PCB-containing equipment and treat all materials as PCB-contaminated. This means PPE, tools, rags, and any other items that have come in contact with a PCB-contaminated surface.

- Eye/Face Protection
- Chemical Resistant Clothing
- Respirators if working above the PEL
- Nitrile gloves

**NOTE:** PPE should be disposed of as hazardous waste.

## 7. SAMPLING AND TESTING FOR PCBs IN PRODUCTS

EHS can arrange for sampling and testing of any oil or oil-containing item that is suspected to contain PCBs. It is in the best interest of the department that uses or owns this type of material to be certain whether an item contains PCBs, either through manufacturer information, SDS information or through laboratory analysis. PCBs will most often be found in oil-filled electrical equipment that was manufactured before 1980 and will be found less often in hydraulic systems and heat transfer systems.

## 8. SPILL CONTAINMENT REQUIREMENTS

All PCBs in use, or in storage for use, except for energized pole mounted transformers, that are not totally enclosed, must be equipped with impermeable spill containment with a capacity at least as great as the larger of:

- Twice the volume of the largest PCB item stored in the spill containment structure; or
- 25% of the total volume of all PCB items stored in the spill containment structure.

## 9. RELEASES

EHS requires documentation of detailed information related to all releases of PCBs including:

1. The date on which the release was first discovered;
2. If known, the date on which the release first occurred;
3. Location of the release;
4. An estimate of the amount of fluid released ;
5. The date and time of cleanup (see Note below); and
6. Information regarding the spread of contamination and repairs to equipment.

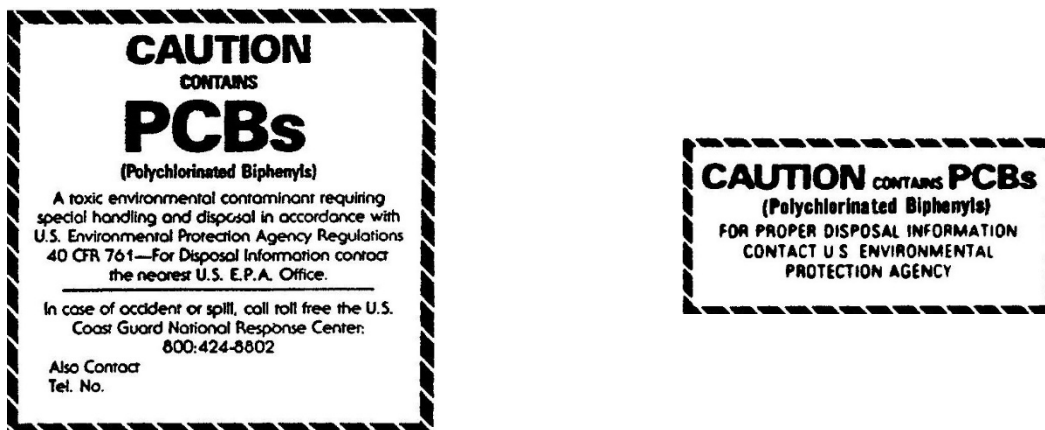
**Note:** Cleanup of all releases must be initiated within 24 hours from the time the release was first discovered and must be conducted by personnel who have been trained on the hazards of PCBs.

Submit to [chemsafety-L@list.unm.edu](mailto:chemsafety-L@list.unm.edu) or after hours call the UNM duty officer pager.

## 10. WASTE MANAGEMENT OF PCBs

- Labeling - It is the owner or waste generator’s responsibility to properly label PCB waste.

Figure 1. Large and Small PCB Labels



- Notify EHS immediately of PCB-containing or potential PCB-containing items that have faded, illegible, or missing labeling.
- Requesting a PCB Waste Pickup - To request a pickup of PCB-containing waste, the waste generator must submit a completed Chemical Waste Pickup Request Form (on the EHS web site) to chemsafety-L@list.unm.edu. Be sure to keep a copy of the form for your files. Retaining a copy of the form gives the owner of PCB-containing equipment an out-of-service date record prior to disposal. PCB wastes should be properly labeled and submitted for pickup as soon as possible after generation to avoid potential for spread of PCB contamination at the generator's location.
- Generators are reminded that at no time should they take it upon themselves to transport PCB waste to EHS or to any other location, either on or off UNM property.
- Do not leave PCB-contaminated materials outside uncovered while awaiting pickup. A release of PCB-contaminants into the air (off-gassing) is increasingly likely in direct sunlight.
- Items with Accessible PCBs - When an item destined for waste disposal contains accessible PCB-contaminated oil, EHS may be able to assist with arrangements to have a qualified/certified contractor pump the oil into drums. Generators must not attempt to do this themselves due to the potential for spreading PCB contamination. The contractor will properly label the drum(s) of PCB oil as well as the item from which the oil was pumped. Once the oil has been pumped out of the item, it is the responsibility of the PCB waste generator to submit a Chemical Waste Pickup Request for both the oil pumped from the item as well as the item itself. PCB Items that are Totally Enclosed - Place totally enclosed PCB items (ballasts, capacitors, etc.) destined for disposal in either a plastic bag or other suitably sized container. Place items larger than 100 cubic inches in a comparably sized drum or on a containment pallet. List the items as "Items with accessible PCBs" on a Chemical Waste Pickup Request form and submit the form to EHS. It is the responsibility of the waste generator to properly label PCB Items that are Totally Enclosed. If the items are in a drum (PCB article container), put a PCB label on the drum, available from EHS. If the items are in a bag, put the PCB label on the bag. If the items are on a containment pallet, put a PCB label on each item.
- PCB Items That Are Leaking PCBs - If the PCB waste (e.g., ballast, capacitor, voltage regulator) is leaking, it is extremely important that the leaking material be contained. Special care should go into complying with the SDS for PCBs in order to avoid human exposure and environmental contamination. Any PPE used in handling a leaking item must be handled as a PCB contaminated waste, with no exceptions. Any leaking items must also be given special attention to avoid the spread of contamination to material handlers or the environment. Any event that includes the leaking or spill of PCB material requires involved personnel to immediately contact EHS for instruction and assistance in remediation. Any PCB item that is leaking should be placed into double 6-mil plastic bags, sealed, and labeled with the PCB label. If the item is too large to be placed into a plastic bag, double wrap it in 6-mil plastic sheeting, seal it closed with duct tape, and label it with the PCB label.
- Other PCB-Contaminated Items - All materials used in handling or cleaning up PCB material should be assumed to be PCB-contaminated and thus handled as such. PCB-contaminated rags, PPE, and spill cleanup debris must be placed into plastic bags with a minimum thickness of 6-mil, sealed, labeled, and submitted to EHS on a Chemical Waste Pickup Request form for waste pickup scheduling. Care should be taken to assure that no PCB contamination is spread beyond the material going into the bag.

- Contact EHS with any questions about PCBs and/or to obtain labels or containment vessels for leaking PCB equipment.