ENVIRONMENTAL HEALTH & SAFETY
UNIVERSITY of WASHINGTON

Polychlorinated biphenyls (PCB) Management

INTRODUCTION

Polychlorinated biphenyls (PCBs) are very toxic and persistent in the environment. Before their manufacture was banned in 1979, PCBs were used widely in electrical equipment, including transformers. Many transformers still contain traces of PCB-contaminated oil even after the oil has been changed several times.

Numerous mechanical rooms and electrical vaults on campus house transformers and other PCB-containing equipment such as capacitors and switches. Most of this equipment was installed before the PCB ban. The Washington State Department of Ecology (Ecology) and the Environmental Protection Agency (EPA) require that these items, along with PCB-contaminated soil and surfaces, be managed carefully. The EPA regulates wastes containing 50 ppm (parts per million) of PCBs and greater. Ecology regulates wastes containing from two to 50 ppm of PCBs. Both agencies have extensive requirements for management and disposal of PCB wastes. University of Washington administrative policy further restricts the transporters and end point disposal facilities used for PCB wastes.

Facilities Services manages all high voltage electrical equipment on the UW Seattle campus. Environmental Health and Safety (EH&S) oversees PCB management, coordinating sampling and disposal, conducting audits, reviewing work plans and ensuring compliance with the regulations.

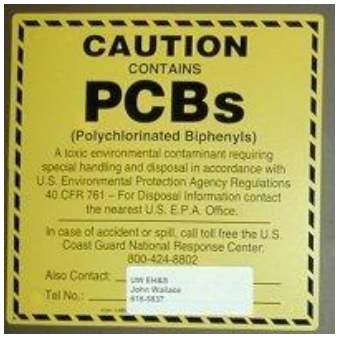
It should be assumed that any oil-filled electrical equipment (transformer or other electrical equipment) that ever contained PCBs will be regulated.

TRANSFORMER VAULT

Mechanical rooms and electrical vaults at the University that contain older oil-filled transformers with PCB-contaminated oil must be identified and labeled. These locations are typically referred to as "Non-Restricted Access Areas." Inspections of these locations are conducted regularly to ensure compliance.

There are mechanical rooms at the University where historical PCB floor and wall contamination remains and has been encapsulated in place.

EPA regulations require that encapsulated surfaces be marked with the yellow "Caution Contains PCBs" sticker typically used for labeling PCB transformers (>500 ppm). These locations are also inspected regularly.



The following rooms at the University have PCB contamination encapsulated in place:

Building	Room
Haggett North	G203
Haggett South	G206
Health Sciences	B123A
Health Sciences	D005
Mechanical Engineering	B009
Power Plant	027

There are no longer any electrical vaults on campus with floors that have readily exposed PCB contamination. Locations previously classified as "restricted vaults" have been cleaned up.

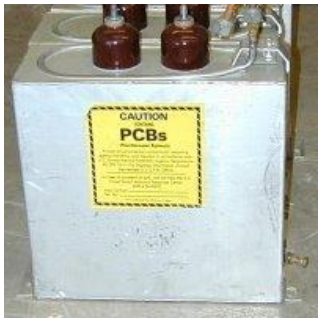
TRANSFORMER INVENTORIES

Active inventories are kept of each transformer indicating its general specifications along with the volume of oil, PCB concentrations and regulatory status.

TRANSFORMER REPLACEMENT

A key component of the PCB management program is to ensure that the oil-filled transformers that have reached their life expectancy are removed from service and replaced with non-PCB containing equipment. We ensure that all PCB contamination is removed and PCB wastes are managed correctly. Higher priority is given to units with high levels of PCBs and other maintenance issues. The Capital Projects Office, along with Facilities Services, has incorporated these priorities into the recent utility upgrades on the Seattle campus.

OTHER EQUIPMENT



Other types of older oil-filled electrical equipment must be removed and/or replaced whenever feasible and disposed of properly through EH&S.

Remodels, laboratory moves, and standard maintenance and alterations work all require that equipment suspected or known to contain PCBs be inspected and screened for PCB contamination. Examples of items include old x-ray machines and other large older laboratory equipment that contain power sources, power generators and capacitors (pictured), as well as fluorescent light ballasts.

FLUORESCENT LIGHT BALLASTS

Fluorescent light ballasts may contain PCBs and must be managed in accordance with state and federal regulations. All ballasts manufactured through 1978 contain PCBs. Also, some ballasts manufactured after 1978 may contain PCBs or another carcinogenic chemical (DEHP). For these reasons, all fluorescent lighting ballasts which are not specifically labeled "No PCBs" must be suspected to contain PCBs.

Facilities Services continues to remove and replace all fluorescent lights and ballasts on campus as part of normal maintenance operations. Fluorescent lighting ballasts with known or suspected PCBs or DEHP must be managed through EH&S. They can be placed in the labeled drum outside the EH&S Environmental Safety Storage Building or left on-site for collections by EH&S. Please submit a Chemical Waste Collection Request form on our website to request pickup.

If you discover a leaking ballast, please contact your supervisor before proceeding. Leaking PCB ballasts are considered an occupational exposure hazard by skin contact. If the contamination is extensive, call the EH&S spills advice line at 206.543.0467. Call 911 if there is an explosion, fire, serious injury or catastrophic leak.

If handling a leaking ballast and other contaminated materials, wear gloves and safety glasses before placing all materials in a sturdy container that will not leak. Leaking ballasts must be sent to a permitted incinerator for disposal and may not be sent for recycling. Contact EH&S at 206.543.7262 to coordinate proper management and disposal.

PCBS IN BUILDING MATERIALS

Buildings constructed or renovated between 1950 and the 1970s may have PCBs in the caulk around windows, weather stripping and in masonry expansion joints. These materials have tested positive for PCBs on campus and around the nation.

Where testing confirms the presence of PCBs in building materials, they must be managed in accordance with University policy and current regulation. Materials containing over 50 parts per million (ppm) PCBs are federally regulated by the EPA and unauthorized for use.

Because of the potentially significant expense of removing PCBs from buildings and the lack of understanding about the risks of exposure to PCBs, it has taken many years to craft good management policies. The EPA has recently published several research papers and developed new guidance that addresses these issues.

EH&S is using recommended best management practices (BMPs) to prioritize action and communicate risks to building occupants and maintenance staff. By following best management practices, the University can meet the goals of minimizing exposure to PCBs and meeting regulatory compliance.

For more information, see the EPA guidance for PCBs in older buildings at PCBs in Building Materials.

RECORDS AND REPORTS

EH&S maintains all mandatory PCB regulatory records. All routine work tracked and filed. Projects involving remediation or transformer replacements are managed by the Capital Projects office, with significant coordination from EH&S. EH&S routinely reports to the EPA the progress of the PCB program with status update letters and annual reports.

Guidelines for developing procedures for proper cleanup and disposal of PCBs are given in the PCBs Design Guide on the EH&S website at www.ehs.washington.edu.