

POLYCHLORINATED BIPHENYLS (PCB) WASTE MANAGEMENT PLAN

Section I. Program Overview and General Information

A. Purpose/Background

The use, storage, and disposal of PCB's are regulated by the Environmental Protection Agency (EPA) under the Toxic Control Substance Act (TSCA) and 40 CFR, Part 761.

Polychlorinated Biphenyls were widely used as a fire retardant and insulator in the manufacture of transformers and capacitors. This was due to their ability to withstand exceptionally high temperatures. Because of their classification as a human carcinogen, the EPA banned their use in 1979. The exception would be their regulated use in R&D research. Transformers and capacitors, which were manufactured prior to 1979 found at Rutgers University, contain oil, which may contain certain levels (ppm) of PCB's. Therefore, all oil-filled equipment must be disposed of through REHS. Because of their highly regulated use and disposal, all oils from transformers /power supplies need to be sampled by REHS prior to disposal of the oil and the carcass. Oil filled transformers and capacitors can be found as separate units or in laboratory equipment at the university such as

- X-ray Generating Devices
- Medical X-ray Units

In addition, contaminated oil with PCB's may be found in:

- Old high voltage power supplies (transformers)
- Vacuum pumps.

PCB's can also be found in fluorescent light ballasts. These are managed and sent off site for recycling through the Facilities/Maintenance departments with universal waste at each of the campus locations.

B. Definitions

CFR - Code of Federal Regulations

PCB- Polychlorinated Biphenyls

TSCA -Toxic Substance Control Act

Non-PCB Transformer - any transformer that contains oil/dielectric fluid less than 50 ppm PCB

PCB Contaminated Electrical Equipment - any electrical equipment, including but not limited to, transformers that contains PCB's at concentrations greater than or equal to 50 ppm and < 500 ppm in the contaminating fluid (oil).

PCB Transformer- any transformer that contains greater than or equal to 500 ppm PCB.

Capacitor - a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric (oil).

PPM - Parts per Million (mg/l)

C. Generator/User Responsibilities

It is the responsibility of the generator or user of oil filled equipment to contact REHS @ 732-445-2550 prior to disposal of the equipment. Types of common equipment that could contain oil can be referenced in Section A. An REHS representative will then evaluate the equipment and make a determination if any sampling prior to disposal is necessary. (Details on these requirements can be found in the Facilities/Maintenance PCB Management Procedure section of this document)

D. Laboratory Researcher Responsibilities

The researcher is responsible for notifying REHS prior to the use of PCB's in their lab. (Details on these requirements can be found in the Laboratory PCB Management Procedure section of this document)

E. REHS Responsibilities

REHS has the responsibility to determine if sampling of equipment is necessary prior to disposal. If so, REHS will provide the sampling and submittal of the sample to a certified lab for analysis. Once the sample results are received, REHS will setup the proper disposal of the equipment. In addition, REHS is responsible for maintaining all appropriate documentation. This includes manifests, certificates of disposal, PCB annual document logs, transformer inventory, and all sample analysis results. REHS is responsible to conduct periodic assessments of PCB practices at the University. This includes yearly inspections of laboratories that use PCBs.

SECTION V. FACILITIES' PCB MANAGEMENT PROCEDURES

A. Background

The Utilities Department at Rutgers is responsible for all electrical distribution at the University. Periodically transformers/switches are removed from service throughout the university due to electrical failure and/or equipment upgrades. Once they are taken out of service, the oil in the unit needs to be sampled for PCBs to allow for the proper disposal of the oil and the carcass. REHS provides this service. The oil will be drained into 55-gallon drums and the Utilities department will be left with the transformer carcass. The carcasses are then disposed of by the Utilities department by sending them to G&S Technologies in Kearny, New Jersey.

Throughout the late 1980's, the Utilities department completed an extensive retrofitting of all the transformers at Rutgers University. This process was accomplished by draining each unit which had contained PCB's of 50 ppm or more until the levels in the transformer oil become low enough to reclassify the transformer as NON-PCB (<50 ppm). Each drain is called a cycle. Depending on the levels initially in the transformer, it could have taken up to 3 & 4 cycles to get the PCB levels down below 50 ppm. It is important to remember that over time, levels of PCB's could elevate back to above 50 ppm, which would reclassify the oil and the carcass as PCB and regulate it under TSCA. This phenomenon is called leach-back. The PCB's tend to cling to the side of the units and then leach back into the oil over time. That is why it is so important to sample all transformer oils prior to disposal.

In addition, the Facilities' department manages the collection and disposal of PCB ballasts. PCB ballasts are collected and stored in 55-gallon drums at specific locations throughout the university. They are classified as universal waste and are sent out to an off-site recycler. **For more information on PCB ballasts you should refer to the Facilities/Maintenance Waste Management Procedures.**

B. Storage

Transformers and switches that are taken out of service by Utilities should be stored temporary in secondary containment until the unit(s) are disposed of. The regulations also specify that they should be covered or stored under a roof to prevent rainwater from contacting any PCB's. This is especially important if the PCB levels found in the oil are 50 ppm or more. The date that the unit was taken out of service should be clearly marked on the unit(s)/drums of oil as well and documented if the levels of the PCB's in the oil are found to be 50 ppm or more.

C. Disposal

Contact REHS for disposal at (732) 445-2550. REHS will sample the oil in the drums/unit to determine its waste classification. Once the sample results are known, REHS will set up the proper disposal of the oil/unit.

The following disposal requirements apply:

- All TSCA regulated oils and transformer/switch carcasses are disposed of through REHS.
- All used oil drums from transformers/switches are picked up and managed by REHS.
- Transformer/Switch carcasses which are not TSCA regulated (< 50 ppm) are disposed of through the Utilities department