



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

# **Polychlorinated Biphenyl Dangerous Waste**

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## **Discussion Paper**

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Hazardous Waste and Toxics Reduction Program  
Washington State Department of Ecology  
Olympia, Washington

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This discussion paper describes how polychlorinated biphenyl (PCB) wastes are regulated in Washington and provides guidance on safe PCB waste management. If you need more information that is not discussed here please contact a regional hazardous waste specialist (see More Information section on page 9).

## PCB Regulations

### Relationship with Other Rules

PCB wastes are regulated by Chapter 173-303 WAC (Washington Administrative Code) the Dangerous Waste Regulations and the U.S. Environmental Protection Agency (EPA) under 40 CFR (Code of Federal Regulations) Part 761. This discussion paper focuses on the requirements of the Dangerous Waste Regulations, but also indicates areas that are regulated under the EPA rule. While the Dangerous Waste Regulations regulate only the management of waste materials, 40 CFR Part 761 is much broader and also regulates the manufacturing, processing, distribution and use of PCBs. The requirements of both rules must be met for any PCB waste. However, many wastes regulated under 40 CFR Part 761 are typically excluded from the Dangerous Waste Regulations.

### Listed WPCB

The PCB listing WPCB originally went into effect on May 15, 1985. PCB wastes listed as WPCB are considered to be dangerous wastes and must be managed accordingly. An amendment was made to the original listing in 1993 to add bushings to the list of PCB-containing equipment. In November 1995, as part of a larger modification to state-only requirements, two other changes were made to the listing. The rinsing requirement was deleted and replaced with the proviso that if PCB-containing equipment is drained of all free-flowing liquid, the equipment does not meet the listing and is therefore not considered to be dangerous waste, provided it remains whole. The second change was to set a minimum regulatory level of two parts per million (ppm). Nothing containing less than two parts per million (ppm) is considered a WPCB listed waste.

### PCB Exclusion

PCB wastes that would otherwise be regulated as dangerous waste are excluded from the Dangerous Waste Regulations if they meet the requirements at WAC 173-303-071(3)(k). PCB wastes are excluded if their disposal is regulated by EPA under 40 CFR 761.60, Toxic Substances Control Act (TSCA), and they are dangerous waste either because 1) they fail the Toxicity Characteristic Leaching Procedure for waste codes D018 through D043 or 2) because they are dangerous waste only because of the dangerous waste criteria of 173-303-100.

#### Note

*Transformers, capacitors, and bushings, which are being stored in lieu of being disposed, are considered discarded.*

In addition, wastes that are dangerous solely because of the WPCB listing under WAC 173-303-9904 are excluded if they are being stored and disposed in a manner equivalent to the requirements of 40 CFR Part 761 Subpart D for concentrations of 50 ppm or greater.

Wastes regulated by EPA under 40 CFR Part 761.60 are usually excluded from Ecology's Dangerous Waste Regulations at WAC 173-303-071(3)(k). For transformers, capacitors, and bushings, the wastes regulated under 40 CFR Part 761.60 are typically those containing 50 ppm PCB or greater. However, insulating and cooling fluids are regulated under 40 CFR Part 761 at two ppm PCB or greater. Drained articles are not regulated under 40 CFR Part 761.60 until the concentration of the fluid reaches 500 ppm PCB.

In addition, any WPCB-only PCB wastes, even those not regulated under 40 CFR Part 761, can be excluded from Ecology's requirements if they are stored in accordance with federal requirements for greater than 50 ppm PCB wastes, and within one year, are disposed of or incinerated at facilities permitted under federal standards to manage greater than 50 ppm PCB wastes.

Any waste that is designated as a listed dangerous waste other than WPCB, or characteristic dangerous waste (except D018 - D043) is not excluded from the Dangerous Waste Regulations at WAC 173-303-071(3)(k) and must meet the full requirements of the rule.

## What is Covered Under the Listing

The WPCB listing for PCB covers only transformer, capacitor and bushing wastes that contain two ppm or greater PCB concentration. The regulated concentration refers to the PCB concentration of the insulating or cooling material in the electrical article, not the overall concentration in the waste.

Specifically, the following types of wastes are regulated as WPCB dangerous wastes if they contain two ppm or greater PCB:

1. Transformers, capacitors, or bushings that will no longer be used for their intended use and are being salvaged, rebuilt, or discarded. However, if the transformer, capacitor, or bushing has been drained of all free flowing liquid, then the complete unit is not regulated.
2. Cooling and insulating fluids from transformers, capacitors, or bushings that are being salvaged, rebuilt, or discarded, except when they are reused<sup>1</sup> (without being reclaimed) as cooling or insulating fluids in electrical articles.
3. Cores, including core papers, from transformers, capacitors, or bushings that are being salvaged, rebuilt, or discarded.
4. Rinsate from the rinsing of transformers, capacitors, or bushings that are being salvaged, rebuilt, or discarded, unless the rinsate is reused<sup>1</sup> (without being reclaimed) in other electrical articles.
5. All solid waste generated from the recycling, treatment, storage or disposal of the materials listed above, for example, residues, contaminated soils, absorbents, personal protective clothing, wastewater or air treatment sludges.
6. All other solid wastes that have been mixed with any of the materials listed above.

### Note

Generators are not expected, nor are they encouraged to rinse PCB contaminated equipment; however if they do rinse transformers, capacitors, or bushings, the rinsate must be managed as dangerous waste if the rinsate contains two ppm or greater PCB.

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<sup>1</sup> Distribution, marketing, and processing of PCB is subject to regulation under 40 CFR Part 761.

7. Drained transformers or bushings that contained 50 to 500 ppm PCB that are excluded from regulation under 40 CFR Part 761 are subject to regulation under the Dangerous Waste Regulations.

## What is Not Covered

In general, the following PCB wastes are not subject to Washington's *Dangerous Waste Regulations*. Except in situations that threaten human health or the environment, people handling these wastes in the manner described are not governed by the requirements of Chapter 173-303 WAC.

1. Any state-only regulated or toxic characteristic D018 through D043, PCB wastes whose disposal is regulated by EPA under 40 CFR 761.60 (excluded under WAC 173-303-071(3)(k)). These are generally greater than 50 ppm PCB and small capacitors.
2. Any whole transformers, capacitors, or bushings that have been drained of all free-flowing liquids.
3. Any transformers, capacitors, bushings, cores, fluids, and rinsate that would designate as dangerous waste solely because they are listed as WPCB, (even though less than 50 ppm PCB) and are stored in accordance with 40 CFR 761 Subpart D.
4. Fluids and rinsate from transformers, capacitors, or bushings that are reused<sup>1</sup> (without being reclaimed) in electrical articles. However, fluids and rinsate must be reused within one year after drainage and collection or they will become subject to the Dangerous Waste Regulations.

### Note

A salvager or rebuilders is responsible for all wastes, such as cores and core papers, generated from their salvaging or rebuilding activities, even if the article had previously been drained. All applicable requirements of the Dangerous Waste Regulations must be met by the salvager or rebuilders.

## Activities Affected by the PCB Rule

PCB wastes that do not qualify for any of the regulatory relief described above are subject to the requirements of Chapter 173-303 WAC. In general, the kinds of practices that are subject to the Dangerous Waste Regulations include, but are not limited to:

- Discarding undrained transformers, capacitors, or bushings.
- Discarding insulating or cooling fluids and rinsate, including discharging these substances to air, land, or water, and burning these substances.
- Salvaging, scrapping, or rebuilding transformers, capacitors, or bushings.
- Reusing liquids and rinsate from transformers, capacitors, or bushings as lubricants or fuels.
- Disposal of soils, rags, absorbents, or other materials contaminated with PCB during the salvaging or rebuilding of transformers, capacitors, or bushings.

Those most likely to be affected by the PCB rules include:

- Businesses that receive transformers, capacitors, or bushings for scrap metal or rebuilding.
- Public Utility Districts (PUDs).
- Electrical energy production and distribution systems (e.g., Washington Public Power Supply System and Bonneville Power Administration).
- Industries that own or operate onsite transformers and capacitors.

## Common PCB Wastes

Below are some common PCB wastes regulated by the Dangerous Waste Regulations. Applicable requirements and options that may be available for these wastes under the Dangerous Waste Regulations are also included. PCB wastes are often subject to regulation under 40 CFR Part 761 and all applicable requirements must be met.

### Complete transformers, capacitors, and bushings

Complete transformers, capacitors, and bushings that contain PCB at two ppm or greater concentration are regulated as WPCB dangerous wastes when discarded. Note that the regulatory definition of *discarded* includes disposal, recycling and storage in lieu of disposal, or recycling. Once a transformer, capacitor, or bushing is taken out of service, and can no longer serve the purpose for which it was produced without being reclaimed, it is a solid waste and may designate as a WPCB dangerous waste. However, the unit is excluded from regulation as a dangerous waste if it is either drained of all free-flowing liquid, or if it is excluded under WAC 173-303-071(3)(k). The drained PCB dangerous waste must be disposed properly. The use, storage, and disposal of transformers, capacitors, and bushings containing PCB are also subject to regulation under 40 CFR Part 761.

### Salvaged, rebuilt, or discarded transformers, capacitors, or bushings

Several wastes generated by these activities are listed as WPCB dangerous wastes if the units contained PCB at 2 ppm or greater. Specifically, the listed wastes are: cooling and insulating fluids (and any materials contaminated by cooling or insulating fluids) and cores, including core papers. These wastes may be excluded under the conditions listed in WAC 173-303-071(3)(k).

The requirements for cooling and insulating fluids (and rinsates contaminated with these fluids) are discussed in the next section. Some materials removed from transformers, capacitors, or bushings may be excluded from regulation as dangerous waste if they meet the definition of scrap metal found in WAC 173-303-040 and are managed in a way that prevents release of PCB into the environment.

Exceptional care must be taken when using this approach since any non-scrap metal materials contaminated with residual PCB will designate as WPCB dangerous waste and must be managed appropriately. Salvaging, rebuilding, and disposal of transformers, capacitors, and bushings that contain PCB are also subject to regulation under 40 CFR Part 761.

### Cooling and insulating fluids and rinsate

Cooling and insulating fluids and rinsates drained from transformers, capacitors, or bushings are listed WPCB wastes if the concentration of PCB is 2 ppm or greater. These fluids may be excluded under the conditions listed in WAC 173-303-071(3)(k). If the fluids are reused as cooling, insulating, or rinsing fluids, without being reclaimed, they are not solid wastes and are not subject to the Dangerous Waste Regulations as long as they are reused within one year from draining. Processing, distribution in commerce, and burning of PCB fluids at any concentration are also subject to regulation under 40 CFR Part 761.

## PCB-contaminated soil and other materials

Soil and other waste materials, such as rags and absorbents, that have been contaminated with two ppm or greater PCB are regulated as WPCB dangerous waste if the contamination resulted from the salvaging, rebuilding, or discarding of transformers, capacitors, or bushings. This includes any solid wastes that have been mixed with WPCB dangerous waste. These wastes may be excluded under the conditions listed in WAC 173-303-071(3)(k). These wastes may also qualify for the conditional special waste exclusion under WAC 173-303-073. Otherwise, they must be managed as dangerous waste. Spills resulting from the release of materials containing PCB are also subject to regulation under 40 CFR Part 761.

### Note

*A batch is an amount of waste that is generated less often than once a month (e.g., every three months or twice a year). A batch is still part of the monthly count.*

## Compliance with the Dangerous Waste Regulations

### How to Comply

The aggregated quantity of dangerous wastes generated onsite affects how PCB wastes are covered by Ecology's regulations. The threshold for regulation purposes is 220 pounds of dangerous waste generated per month or per batch. If a person generates dangerous waste (including listed PCB waste) in excess of 220 pounds in any one month, they are subject to the full Dangerous Waste Regulations and all handling requirements. If a person's dangerous waste generation amount does not exceed 220 pounds, they are subject only to certain limited requirements and are considered small quantity generators (SQGs).

The following information discusses the specific requirements that apply to people who conduct various activities with PCB wastes that are regulated under the Dangerous Waste Regulations.

### Note

*Certain dangerous wastes such as acute hazardous waste and extremely hazardous toxic dangerous waste have a threshold of 2.2 pounds. Small quantity generator allowances are not applicable if these wastes are generated or accumulated on site in excess of 2.2 pounds.*

### Small Quantity Generators (Less than 220 Pounds)

If a person generates (produces) less than 220 pounds of dangerous waste onsite in one month or one batch, that person is required to assure that their dangerous waste is sent to:

- A facility permitted by Ecology to manage dangerous waste.
- A facility permitted to manage moderate risk waste.
- A facility authorized to manage dangerous waste by another state.
- A facility licensed to handle municipal solid waste.
- A facility which beneficially recycles wastes.
- A publicly-owned treatment works under certain limited conditions.

Persons generating these small quantities of dangerous waste will not be subject to all the requirements described below, however, they should become familiar with the methods for determining waste quantities and the small quantity requirements as specified in WAC 173-303-070(7) and (8). Anytime a person exceeds the quantity limit, even if they were previously below the limit, they are subject to the specific requirements described below.

## **Other Generators**

The requirements for generators are found in WAC 173-303-170 through 173-303-230. The following is a brief summary of the requirements for generators (of more than 220 pounds per month or batch) of dangerous waste:

1. The generator must notify Ecology that they are generating dangerous waste and obtain a RCRA identification number.
2. Dangerous waste must be properly packaged and labeled in containers or tanks.
3. Dangerous waste may not be kept by the generator on their site for more than 90 days if they generate or accumulate more than 2,200 pounds. Those who generate between 220 and 2,200 pounds per month may accumulate their waste for 180 days. While holding dangerous waste onsite, the generator must have certain contingency and personnel training plans to assure safe accumulation.
4. Dangerous waste must be sent to a facility permitted to accept and manage that dangerous waste.
5. Dangerous waste shipments must be sent with an accompanying Uniform Hazardous Waste Manifest that identifies the dangerous waste, the generator, the transporter, and the receiving facility. Dangerous waste shipments may only be transported by persons who have notified with Ecology as dangerous waste transporters.
6. The generator must keep certain records, and must report annually to Ecology on a specific annual report form, the type and amount of dangerous waste generated. The generator must also notify Ecology whenever they have shipped a dangerous waste that did not arrive at the receiving facility within 45 days.

## **Transporters**

The transporter requirements are found in WAC 173-303-240 through 173-303-270. The following is a brief summary of the requirements for a transporter of dangerous waste:

1. The transporter must notify Ecology that they are transporting dangerous waste and obtain a RCRA identification number.
2. Manifests for dangerous waste shipments must be kept with each shipment. Manifests and shipments must be delivered to the designated receiving facility.
3. The transporter must keep certain records.
4. The transporter must report to Ecology the occurrence of any discharges (e.g., leaks, spills) that occur during transport and must clean up those discharges.

## Questions and Answers

Here are answers to the most commonly asked questions about PCB requirements.

### Question

Are spills of PCB oil from transformers that are in active operation covered by the Dangerous Waste Regulations?

### Answer

Yes, but not under the WPCB listing. Spills of hazardous substances are regulated under WAC 173-303-145, including spills from transformers, capacitors, and bushings that are in active operation. Spills from discarded or salvaged transformers, capacitors, or bushings that have not been drained of all free-flowing liquid are also regulated as WPCB dangerous waste. If PCBs are spilled or discharged into the environment such that human health or the environment is threatened, the person responsible for the spill or discharge must notify the appropriate Ecology regional office and other appropriate authorities. The spill must be cleaned up and all contaminated materials managed appropriately. Spills resulting from the release of materials containing PCB are also subject to regulation under 40 CFR Part 761.

### Question

Can a person reuse PCB oils in their transformers?

### Answer

Ecology does not regulate the reuse of oil in a person's own transformers, if the oil can be used without first being reclaimed. In addition, Ecology does not regulate the reuse of oil in another person's transformers under the same "no reclamation" condition. However, the use in retrofilling, processing, and distribution in commerce of PCB fluids are subject to regulation under 40 CFR Part 761.

### Question

When does a person who owns and uses a transformer, capacitor, or bushing have to decide whether or not it is designated as dangerous waste?

### Answer

A transformer, capacitor, or bushing should be designated as dangerous waste when it will no longer be used for its intended use. The decision-maker is the owner/user of the transformer, capacitor, or bushing. The owner/user will typically remove the device from service and take it to a staging area or collection center, at which time they will evaluate the continued usability of the unit. Ecology believes that the owner/user is in the best position to make this decision. If Ecology finds that people are abusing this (e.g., the owner/user is keeping a device for several years, claiming they have not yet decided whether or not they intend to continue using the device), then Ecology may choose to limit the time in which a decision must be made. The owner/user of a device taken out of service and making the claim that it is not a waste should be able to demonstrate that the unit is still usable and disclose what purpose it serves for the owner/user.

### Question

How is the selling and burning of PCB oil for fuel affected by this rule?

**Answer**

The burning of PCB transformer oil as used oil fuel is prohibited by WAC 173-303-515. Processing, distribution in commerce, and burning of PCB fluids at any concentration is subject to regulation under 40 CFR Part 761. The requirements for burning PCB oil under 40 CFR Part 761 are more stringent than those in the *Dangerous Waste Regulations* under WAC 173-303-510 and take precedence.

**Question**

Does the weight of the transformer, capacitor, or bushing shell have to be counted toward my generator status?

**Answer**

The total weight of the transformer, capacitor, or bushing, including the shell, would have to be counted toward a generator's status if: 1) the unit is recycled or discarded without being drained of all free liquid, and 2) the unit was not excluded under WAC 173-303-071(3)(k). Once the unit is drained, it is not designated as a WPCB dangerous waste. The fluid drained from the unit is designated as WPCB dangerous waste if it is not excluded under WAC 173-303-071(3)(k). If a transformer, capacitor, or bushing is disassembled in the process of salvaging, rebuilding, or discarding - the core (but not the shell) is designated as WPCB dangerous waste and counted towards a generator's status.

**Question**

Drained electrical equipment that contains between 50 and 500 ppm PCB is not subject to regulation under 40 CFR Part 761. For example, 761.60(5)(B)(ii) states:

*“PCB articles with a PCB concentration between 50 and 500 ppm must be disposed of by draining all free-flowing liquid from the article and disposing of the liquid in accordance with paragraph (a)(2) or (3) of this section. The disposal of the drained article is not regulated by this rule.”*

Since Ecology regulates PCB from two ppm with no upper limit, are drained articles between 50 and 500 ppm excluded from regulation? Do these articles need to be rinsed? Does this constitute an unregulated gap between EPA's and Ecology's PCB regulations?

**Answer**

Ecology's authority to regulate PCB (from transformers, capacitors, or bushings) is not limited to wastes containing 2 to 50 ppm PCB. The wording of the law (Chapter 70.105 RCW) cites no such concentration limit. RCW 70.105.105 requires Ecology to regulate;

*“...wastes generated from the salvaging, rebuilding, or discarding of transformers or capacitors that have been sold or otherwise transferred for salvage or disposal after the completion of termination of their useful lives and which contain polychlorinated biphenyls, and whose disposal is not regulated under 40 CFR Part 761.”*

The wording of this section does not establish an upper concentration for regulation of PCB wastes, and it clearly gives Ecology the authority to regulate any PCB waste not regulated under 40 CFR Part 761. Since drained transformers or bushings that contained 50 to 500 ppm PCB are excluded from regulation under 40 CFR Part 761, they become subject to regulation under Chapter 70.105 RCW. Complete transformers, capacitors, and bushings that have been drained of all free liquid are also not subject to the WPCB listing in the *Dangerous Waste Regulations*. However, if transformers or bushings with between two ppm and 500 ppm PCB are disassembled in the process of salvaging, rebuilding, or discarding, the core is designated as WPCB dangerous waste.

**NOTE:** Capacitors that contain between 50 and 500 ppm PCB are required to be disposed of in an incinerator or a chemical waste landfill under rules set in 40 CFR Part 761, and as such are not subject to regulation under Chapter 70.105 RCW.

## More Information

You can access this and other publications on Ecology's web site at [www.ecy.wa.gov](http://www.ecy.wa.gov).

For a list of EPA-Approved (TSCA-authorized) PCB management facilities, please see the Hazardous waste Services Directory, at: <http://apps.ecy.wa.gov/hwsd/default.htm>.

Ecology employs environmental experts who can help you with your waste reduction and compliance questions. Toxics Reduction Specialists are available to advise you on pollution prevention techniques and issues. They can provide information over the telephone, or make educational (non-enforcement) visits to your work site to provide free technical assistance. Hazardous Waste Specialists can help you understand your regulatory requirements as a generator and offer sound advice on safe waste management. To contact your nearest Ecology regional office see the map below.

## Department of Ecology Regions

<http://www.ecy.wa.gov/programs/hwtr>

