

3. Cleanup and Management of PCBs: Options for PCB Remediation Waste

Brochure Series

Guiding States and Brownfield Projects through the PCB Rules under TSCA: Navigating the TSCA process is complex and represents a challenge for many Brownfield remediation and redevelopment projects which can stretch limited funds. This brochure series focuses on the topics most relevant to the states and their Brownfield stakeholders:

1. Working with the Federal and State PCB Regulations on Brownfield Sites: When and What Federal Involvement is Required;
2. Characterization: Sampling and Testing Approaches for PCBs;
3. Cleanup and Management of PCBs;
4. PCBs in Building Materials; and
5. PCB Articles, Containers and Liquids.

This brochure is the third in a guidance series of five to help applicants work through PCB remediation at Brownfields projects. In this brochure, PCB waste remediation options are discussed. The first two brochures in this series should be first consulted to determine the degree and nature of Federal and/or State jurisdiction in PCB remediation, the characterization and definition of the different types of PCB-remediation waste, and the appropriate methods of sampling to determine the extent and concentration of PCBs in the materials of concern. Specific issues related solely to PCBs in building materials are discussed in the fourth brochure in this series.

The Toxic Substances Control Act (TSCA) and the federal PCB regulations under 40 CFR Part 761 govern the manufacture, use, distribution in commerce, storage, and disposal of PCBs. Section 761.61 of TSCA provides several options for cleaning up and disposing of **PCB Remediation Waste**. **PCB Remediation Waste** includes waste containing PCBs as a result of a spill, release, or other unauthorized disposal. See Brochure 1 for more information on what is and is not a PCB remediation waste.

Typically TSCA only applies to materials with *as-found concentrations* equal to or greater than 1 ppm.

As-found means the concentration of the PCBs at the site at the time the waste is discovered, before it was excavated or potentially mixed with clean soil. *Original source concentration* however, is the concentration of the PCBs in the material that was originally

spilled or released. Regulations prohibit dilution of the PCB *as-found concentrations* of contaminated soil by mixing it with clean soil during excavation.

To determine if a material is a **PCB Remediation Waste** you need to know its *as-found concentrations*, date of release, and *original source concentration*. Additional research to determine dates and concentrations may benefit your project by simplifying the number and level of environmental agencies involved in assisting your efforts. The **first brochure in this series** provides additional details on the definition and characterization of **PCB Remediation Waste**.

There are **Options for Cleanup and Disposal of Remediation Waste** specified in 40 CFR 761.61. The major elements for consideration and requirements of each option are outlined in the comparison table. Note that a hybrid approach blending elements of the self-implementing and risk-based options is also allowed, but requires approval from the EPA Regional Administrator.

PCB Remediation Waste (40 CFR 761.61)
Soil, sediment, and sludge
Building and other man-made media such as concrete floors, wood floors, or walls
Sewage sludge
Rags and cleanup debris

Disposal and Remediation Options	Citation	Site Size	Exceptions/Special Considerations	Notification	Operations and Maintenance (O & M)
Self-implementing cleanup and disposal	40 CFR 761.61(a).	Small-moderate size sites	Cannot be used for certain media such as surface water, sediments, & others Prescriptive sampling & cleanup procedures	Notification/certification requirements with EPA, states and local government agencies	Long term stewardship of property may be required, including O&M & deed restrictions
Performance based disposal	40 CFR 761.61(b).	Well defined site & wastes	Remove all PCBs to less than 1 mg/kg PCBs Subpart O (40CFR761.260) verification sampling required Waste disposed at TSCA-approved facility for all wastes	No EPA notification required Notification may be required to local and state agencies	No O&M but cleanup documentation must be kept on file
Risk-based cleanup or disposal	40 CFR 761.61(c).	Complex or large sites	Good for all media Requires EPA approval Requires all information under 40 CFR 761.61(a)(3) Requires risk exposure assessment	Notification may be required to EPA, local and state agencies	Long-term O&M and financial assurance will likely be required

Additional considerations when selecting the remedial option best for a particular site include the following:

Self Implementing Option (40 CFR 761.61(a)):

- The required cleanup level is determined by the proposed use and type of occupancy expected after the cleanup is completed. Within each use/occupancy group, there are cleanup levels for different types of waste material. Post cleanup verification sampling is required. Cleanup levels and on-site disposal options are defined on the basis of high and low occupancy definitions.
 - A **high occupancy area (HOA)** is any area where **PCB remediation waste** has been disposed of on-site where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: 840 hours or more for non-porous surfaces and 335 hours or more for bulk **PCB remediation waste**. Examples of an HOA could be a residence, school, day care center, sleeping quarters, and a 40 hour or more per week work station.
 - A **low occupancy area (LOA)** is any area where **PCB remediation waste** has been disposed of on-site and where occupancy for any individual not wearing dermal or respiratory protection for a calendar years: less than 840 hours for non-porous surfaces and less than 335 hours for bulk **PCB remediation wastes**. Examples of an LOA could be an electrical substation or any place in an industrial facility where a worker spends only small amounts of time per week. More specific guidance on HOA and LOA remediation cleanup levels can be found in the “HTRW Center of Expertise Environmental Regulatory Fact Sheet 99-06”.
- The intended reuse scenarios may result in cleanup which utilizes a combination of cleanup standards (e.g., high occupancy and/or low occupancy area) and other conditions (such as restricted access, secured entry, and other such conditions).
- If the cleanup approach includes leaving some PCBs in place, then there is also a responsibility of long-term stewardship of the property which will generally include a filed deed restriction and long-term monitoring, and maintenance of the remedy which is usually a soil, asphalt, or concrete cap.
- Since there is a variety of cleanup scenarios and standards that can be applied, early and regular communication with the EPA and appropriate state PCB coordinators is recommended. Since this option contains prescriptive characterization and verification sampling requirements, it is important that the feasibility and costs of the required sampling be thoroughly evaluated before proceeding.
- Specific guidance on the selection of cleanup levels and examples of cleanup scenarios for different uses and occupancy levels is provided in EPA's guidance manual: *The Polychlorinated Biphenyl (PCB) Site Revitalization Guidance, November 2005*.

- This option may not be used to cleanup: surface or ground waters, sediments in marine and fresh water ecosystems, sewers or sewage treatment systems, any private or public drinking water sources or distributions systems, grazing lands, and vegetables gardens (40 CFR 761.61(a)(1)(i). Cleanup of these contaminated media requires use of the risk-based disposal option under 40 CFR 761.61 (c).
- This option requires compliance with prescriptive procedures for sampling and cleanup including in situ sampling as outlined in Brochure 2.
- This option specifies that bulk PCB remediation waste shall be assumed to contain ≥ 50 ppm for disposal unless characterization sampling is performed as outlined in Brochure 2.

Performance Based Option (40 CFR 761.61(b)):

- All PCB-contaminated wastes with greater than or equal to (\geq) 1 ppm PCBs would have to be removed from the site and disposed of at a TSCA-PCB permitted facility under this option. In order to confirm this, verification sampling should comply with Subpart O. No long term stewardship is required.
- A current list of EPA approved TSCA disposal facilities can be found on the EPA website at www.epa.gov/pcb under “PCB Waste Handlers”. These facilities can include:
 - Approved incinerator (40 CFR 761.70),
 - Approved chemical waste landfill (40 CFR 761.75),
 - RCRA permitted landfill (RCRA Sec. 3004 or State authorized under RCRA Section 3006, non-liquid waste only).
- Analytical and field data must be retained by the responsible party. A written record of such sampling must be established and maintained for 3 years from the date of any decontamination. The record must also be maintained showing sampling locations and analytical results. These records must be made available to EPA in a timely manner, if requested.

Risk Based Disposal Option (40 CFR 761.61(c)):

- The applicant must provide a risk-based demonstration that the proposed remediation will result in a commensurate level of protection for human health and the environment if either the self implementing or performance-based options are not chosen. Each application is reviewed on its merits and approved or disapproved on a site-specific basis.
- End use considerations can be used to modify the remedial approach in the risk based options. Different cleanup standards, for example, may be appropriate for a housing development as compared to a parking lot.
- The applicant must provide details on the sampling procedures, cleanup standard(s), and engineering and institutional controls and demonstrate that these procedures, and controls are sufficient to protect against an unreasonable risk of injury to public health and the environment.
- The EPA can approve site characterization and cleanup procedures that are different from the prescriptive procedures specified in the self-implementing option. For example, EPA could consider and approve a hybrid approach that uses the self-implementing cleanup standards but deviates from the self-implementing sampling requirements.
- Some deviation from the specified grid pattern of characterization is allowed and will be dependent on the nature of the contamination source and materials. For example, the sampling pattern of a scrap metal yard will likely be different than a site with one PCB transformer. Clear identification of the source material and rationale for the proposed sampling pattern is therefore key when utilizing this option.
- The sampling program should be designed to define the risk from short and long-term exposure to PCBs left in place. For example, it should be demonstrated that PCBs left in soil are not leaching or have migrated off-site.
- Vapor intrusion should also be evaluated for the risk based remedial option, if for example, PCBs found under a floor slab are found in very high concentrations (thousands of ppm).

Other Important PCB Disposal and Remediation Requirements & Considerations:

- **State or Local Regulations** - Regional contact information is provided in Brochure 5.
- **Transportation** - PCB waste must be properly manifested. A transporter must notify the EPA by completing EPA form 7710-53.
- **Capping** - If any PCB wastes are left on-site, capping may be required to limit exposure. Cap requirements are detailed in **40 CFR 761.61(a)(7) or 761.61(c)**.
- **Record Keeping** – Cleanup activities must be documented and retained for 3 years. Activities that should be documented include: sources, dates, locations and description of the contamination, pre-cleanup sampling data, descriptions of solid surfaces cleaned, depth of soils excavated and amount of soil removed, and post-cleanup verification sampling (see **40 CFR 761.61(a)(9) and 761.79(f)**).
- **Storage of PCB Waste** – Bulk **PCB remediation waste** may be stored at the cleanup site for 180 days (**40 CFR 761.65(c)(9)**).
- **Notification of cleanup** – Notification should include: (1) nature of the contamination, (2) summary of sampling procedures, analytical results, dates of collection and analyses, (3) location and extent of contamination, (4) cleanup plan with schedule, disposal approaches, and contingency plans, and (5) written certification that all plans, procedures and related documents and data are on file at the remediation location.
 - Written notification must be provided 30 days prior to the date that the cleanup begins.
 - If the EPA does not respond within 30 days of receiving this notice, then the notification is assumed to be complete and the cleanup may begin provided the PCB cleanup and disposal meets all prescriptive requirements specified in 40 CFR 761.61(a). If a deviation from any of the self-implementing procedures is proposed under 761.61(c), the 30-day default time line does not apply.
 - Once cleanup is underway, the EPA must be notified in writing of any changes to the proposed cleanup no less than 14 days prior to the proposed change.
 - The EPA must respond verbally within 7 days and in writing within 14 days to this change notification. If the EPA does not respond within these time frames the change is deemed acceptable and may proceed.
 - Notification of **PCB** waste handling activities - The project owner should consult with the intended disposal facility to determine the form and identification number that should be used (**see 40 CFR 761.205 (c)(1)**).

References

EPA Website: <http://www.epa.gov/epawaste/hazard/tsd/pcbs/index.htm>.

The following documents are available at the EPA website:

- *Code of Federal Regulations Part 761*
- *The Polychlorinated Biphenyl (PCB) Site Revitalization Guidance, Nov. 2005.*
- *PCB Questions and Answers Manual, Updated January 2009.*
- *EPA Region 1 Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls, Rev. 4, May 5, 2011.*

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This guidance document addresses cleanup and disposal requirements for Polychlorinated Biphenyls (PCBs) only. This guidance document does not replace or supplant the requirements of the Toxic Substances Control Act (TSCA) PCB regulations. Please refer to the PCB regulations at 40 CFR Part 761 for specific regulatory and legal requirements.

EPA Region 1 Contact Information

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TSCA Hotline - 202-554-1404 or e-mail
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For **State Contact Information**,
please see Brochure #5 - **PCB Articles, Containers and Liquids**

