

Assessing and Remediating PCB Bulk Product Waste and PCB Remediation Waste at Large and Complex Sites

Kim Tisa, TRC Senior Consultant

Mark Robinson, TRC Market Director, Atlantic South

April 10, 2024

SUPPORTING

[DOING]

LEADING

Agenda

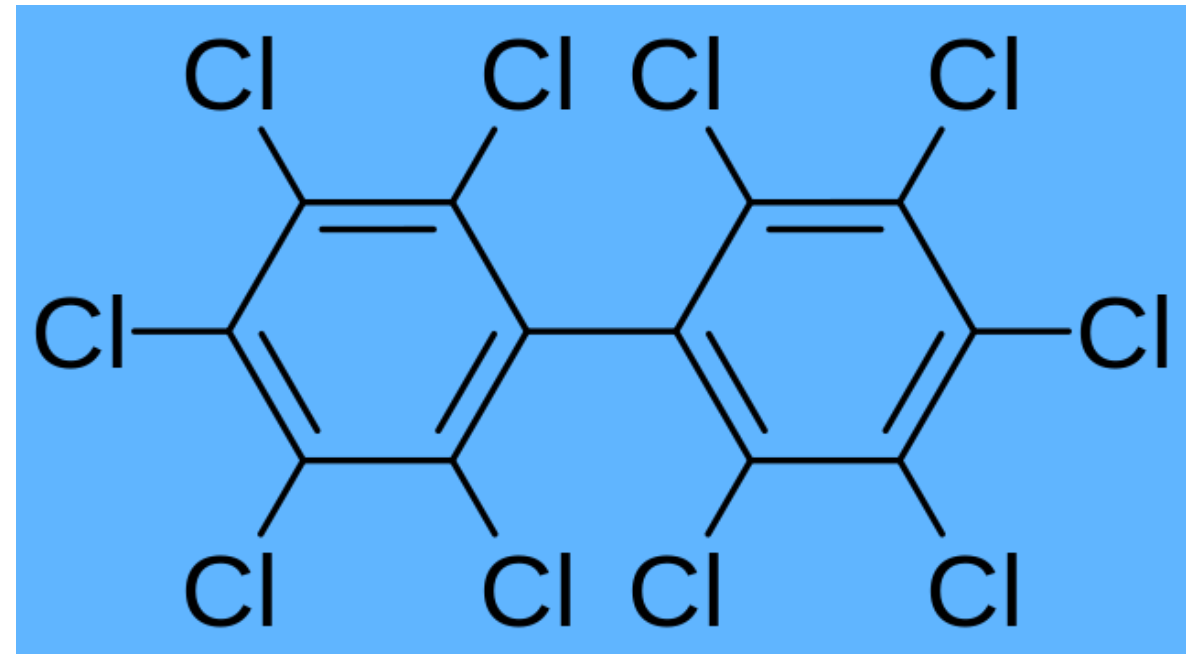
- Introduction
- Regulatory History & Provisions
- 2023 Amendments
- When do you look for PCBs?
- PCB Remediation Overview
 - Self-Implementing cleanup and disposal
 - Performance-based cleanup and disposal
 - Risk-based cleanup and disposal
- PCB Bulk Product Waste
- Excluded PCB Products
- Pending Changes
- Select PCB Guidance since 1998



Introduction

What are Polychlorinated Biphenyls (PCBs)?

- Man-made organic chemical comprised of carbon, hydrogen, and chlorine atoms on the biphenyl ring.
- Number of chlorine atoms (up to 10 positions) and their location on the PCB molecule determine the physical and chemical properties.
- PCBs were manufactured commercially in the US from 1929 until manufacture was banned in 1979 by the Toxic Substances Control Act (TSCA).

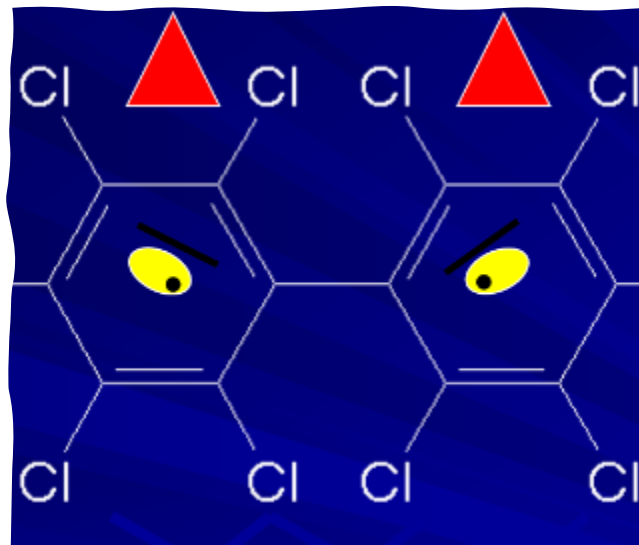


https://commons.wikimedia.org/wiki/File:Decaclorobifenile_struttura.svg

Introduction

PCB Production and Names

- Monsanto was only US producer, 1.4 billion pounds.
- Various tradenames, with the most common being Aroclor™
- 209 different congeners with more than 50 used in an Aroclor™ mix



[https://commons.wikimedia.org/wiki/File:Loose_Slides-302_\(49696922128\).jpg](https://commons.wikimedia.org/wiki/File:Loose_Slides-302_(49696922128).jpg)

Introduction



PCB Trade Names (Generic Name Askarel)

Trade Name	User
ALC	Uptegraff
Abestol	American
Capacitor 21	Monsanto
Chlorinol/Clorinol	Sprague Electric
Diaclor	Sangamo Electric
EEC-18	Niagra
Elemex	McGraw Edison
Hyvol	Aerovox
Inerteen	Westinghouse
MCS 1489	Monsanto
No-Flamol	Wagner
Pyranol	General Electric
Saf-T-Kuhl	Kuhlman Electric
Santovac 1 & 2	Monsanto

Trade Name	User
Aroclor	Monsanto
ASK	Queensboro
Chlorextol	Allis-Chalmers
Clophen	Bayer
Dykanol	Cornell Dubilier
EEC-18	Power Zone
Eucarel	Electrical Util. Corp.
Inclor	Caffaro
Magvar	General Electric
Non-Flammable Liquid	ITE
Pydraul	Monsanto
Pyroclor	Monsanto
Santotherm	Monsanto
Therminol	Monsanto

Introduction

Common Uses

- Transformers
 - Capacitors
 - Hydraulic fluids
 - Oil-based paints
 - Fluorescent light ballasts
 - Lubricating & cutting oils
 - Floor finishes
 - Fire retardants
 - Thermal insulation materials
 - Caulk/sealants/waterproofing
 - Coatings for wire/electrical gear
 - Carbonless copy paper
 - Inks and dyes
 - Adhesives/mastics
 - Auto shredding fluff
 - RCRA Used Oil / MA or PA Waste Oil
- ...and more...*



<https://commons.wikimedia.org/wiki/File:CP-SLOPE-wb-gantry-power-supply-transformer-wiki.JPG>



<https://commons.wikimedia.org/wiki/File:CP-SLOPE-wb-gantry-power-supply-transformer-wiki.JPG>

FLB: Note **absence of the statement “No PCBs.”**



PCB Small Capacitor: **Trade Name is indicative of PCB concentration.**



Small Capacitor which does not contain PCBs. Note **“No PCBs”** marking indicates that it was manufactured without PCBs.



Regulatory History



https://commons.wikimedia.org/wiki/File:EPA_HQ_-_WJ_Clinton_Building_-_Main_entrance_-_2017a.tif

Brief Regulatory History

- **1976** - Due to PCB Toxicity and Environmental Persistence Concerns, Congress enacted Section 6(e) of the Toxic Substances Control Act (TSCA)
- **1979** - PCBs banned except for “totally enclosed uses”, such as transformers, capacitors, vacuum pumps and hydraulic fluids (a.k.a., authorized uses)
- **1998** - PCB Disposal Amendments (a.k.a., the Mega Rule)
- **2023** - PCB Disposal Amendments (effective 2/26/24)

General Regulatory Provisions

- **Prohibitions** - The TSCA PCB regulations (40 CFR Part 761) placed prohibitions on, and requirements for the use, manufacture, processing, and distribution in commerce, storage, marking, and disposal requirements for PCBs and PCB items.
- **Remedial/Disposal Frameworks** - Governs owners, operators, and/or persons who manufacture, process, distribute in commerce, use, or dispose of PCBs and PCB items.
- **Not Delegated** - TSCA authority is not delegated to the states; therefore, both TSCA and state regulations will apply.



[https://commons.wikimedia.org/wiki/File:Spring_2008,_Targeted_cleanup_near_Aerovox_shoreline_\(5242413878\).jpg](https://commons.wikimedia.org/wiki/File:Spring_2008,_Targeted_cleanup_near_Aerovox_shoreline_(5242413878).jpg)

2023 Amendments

Substantive Changes



Methods: Expanded the list of extraction and determinative methods in the PCB regulations (40 CFR part 761) to include more options that use less solvent and reduce waste.



Performance-based: Performance-based disposal option for PCB remediation waste under § 761.61(b) amended to add explicit cleanup provisions, including the requirement to notify EPA and follow specific sampling protocols.



Roadbed provision: Removed the provision allowing PCB bulk product waste to be disposed of as roadbed material to improve protectiveness of human health and the environment.



Emergency flexibility: Added flexibility for cleaning up spills that occur during emergency situations (e.g., hurricane, flood) to allow the Agency to work collaboratively with responsible parties expedite response actions.

2023 Amendments

Substantive Changes (continued)



Containers: Amended § 761.65(c)(9) to allow the use of non-leaking, covered containers to be used at the site of generation for up to 180 days



Annual Report Form: Mandatory Form for Annual Reports required under § 761.180(b)(3). Removed manifest tracking numbers from annual reports for disposal/storage facilities but maintained annual log requirement.



Harmonized: Harmonized the general disposal requirements for PCB remediation waste, made several revisions to improve regulatory implementation; clarified ambiguities; and corrected technical errors and outdated information.

When do you look for PCBs?

Sometimes Obvious, Sometimes Not

- **Where/When PCBs May Be Present**

- Depends on the Conceptual Site Model (CSM).
- Potential PCB sources may be....
 - **Obvious.** A PCB Transformer release for example.
 - **Less Obvious.** Examples include uncontrolled filling/dumping site, contaminant tracking, buildings/structures built or renovated between 1950 to 1979).

- **If PCBs are detected, is cleanup and disposal of PCBs regulated under TSCA?**

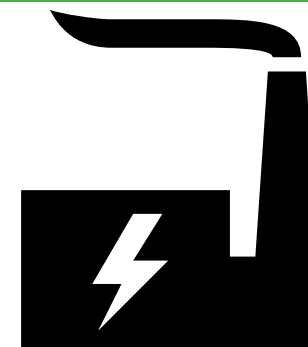
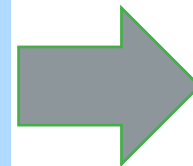
- Not necessarily.



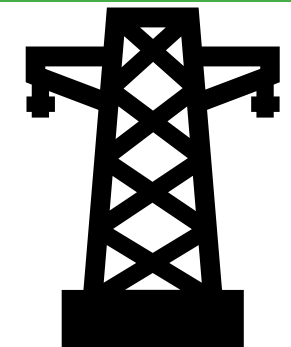
<https://upload.wikimedia.org/wikipedia/commons/7/73/Skeleton-Key-Silhouette.svg>

Key Terms

- PCB Remediation Waste
- PCB Bulk Product Waste
- Excluded PCB Product
- Each defined in 40 CFR Section 761.3



[https://commons.wikimedia.org/wiki/File:Power_Plant_\(2071\)_-_The_Noun_Project.svg](https://commons.wikimedia.org/wiki/File:Power_Plant_(2071)_-_The_Noun_Project.svg)



https://upload.wikimedia.org/wikipedia/commons/d/d3/Electric_Pole.svg

PCB Remediation Overview

PCB Remediation Waste (definition under § 761.3)

Be Careful of Data Dilution...

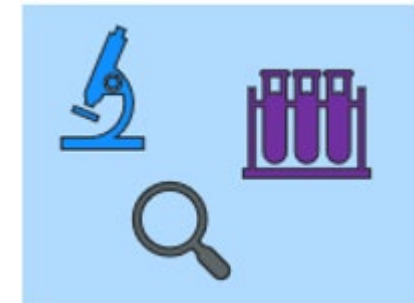
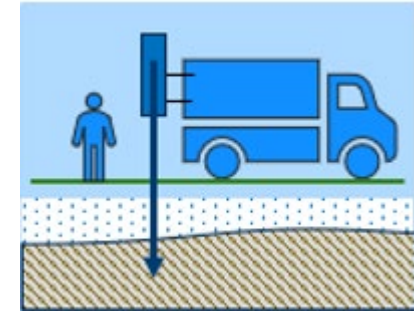
- **Current (or “As Found”) Concentration**
 - ≥ 50 PPM Total PCBs
 - Pre-April 18, 1978 Disposal
- **Unauthorized Source**
 - Any PCB concentration as found
- **Source Concentration**
 - ≥ 500 PPM Total PCB Source
 - Beginning April 18, 1978
 - Any PCB concentration As Found
- **≥ 50 PPM Total PCBs**
 - Beginning July 2, 1979
 - Any PCB concentration as found



PCB Remediation Waste

“As-found concentration” definition at § 761.3

- The concentration measured in samples collected in-situ (i.e., prior to being moved or disturbed for cleanup and/or disposal) from environmental media or material, unless otherwise specifically provided.
- For example, media must not be disturbed, nor may they be diluted (e.g., excavated, placed on a pile, and sampled after such placement), before characterization sampling is conducted.
- Sampling media in piles and existing accumulations would be considered “as-found” if the media were already in piles when the site was first visited by the responsible party, such as during the redevelopment of abandoned properties with historic PCB contamination.
- The as-found concentration is distinct from the source concentration, which is the concentration of the PCBs in the material that was originally spilled, released, or otherwise disposed of at the site.



PCB Remediation Waste

Three Options for Cleanup/Disposal – 1. Self-Implementing

- **Self-Implementing cleanup and disposal (a.k.a., 761.61(a))**

Highly prescriptive with a stipulated review period and established clean-up standards (based on occupancy, e.g., site use) for bulk materials (e.g., soil), non-porous, and porous surfaces (e.g., concrete, asphalt, brick).

Recent amendments added new extraction/analytical methods to provisions. Also added clarification on deed notation requirements for sites with a cap, fence, or low occupancy designation

Also known as 'SIP' for Self-Implementing Plan.



https://upload.wikimedia.org/wikipedia/commons/6/6f/OR_11_064_%2827080320946%29.jpg

PCB Remediation Waste

Three Options for Cleanup/Disposal – 2. Performance-based

- **Performance-based cleanup and disposal (a.k.a., 761.61(b))**

Requires no EPA approval for removal/disposal, allows for fast action, prescribes cleanup levels, and disposal options are limited and conservative (recent amendments added RCRA C landfill to disposal options).

Further work may be required for compliance if cleanup levels not achieved, and reporting conditions may apply.



https://upload.wikimedia.org/wikipedia/commons/5/56/Hazardous_waste_investigation_-_Seltsams_-_Foxborough_-_1986-06-13_-_018.jpg

PCB Remediation Waste

Three Options for Cleanup/Disposal – 3. Risk-based

- **Risk-based cleanup and disposal (a.k.a., 761.61(c))**

Site specific approach applicable to all impacted media.

Utilize EPA streamlining tool (PCB FAST) any time when employing 761.61(c).

EPA designed **PCB FAST** to help Responsible Parties (RPs) and regulators, whenever possible, reduce delays, improve communication, and increase efficiency in the cleanup and disposal of PCBs at a site.



Self-Implementing Cleanup and Disposal (a.k.a., 761.61(a))



Overview

- **Best Fit:** Small-moderate sized sites (< 1-acre) but can be used anywhere not excluded (see below)
- **Applicability:**
 - **Excludes:** Sites that are: Surface water/Groundwater; Sediments in marine and freshwater ecosystem; Sewer or sewage treatment system; Private/public drinking water sources/distribution systems; grazing land; vegetable gardens
 - **Provides cleanup levels for:** Bulk materials (e.g., soil), non-porous, and porous surfaces (e.g., concrete, asphalt, brick)
- **Notification & Certification:** EPA, state, local
- **EPA Review Timeframe:** 30 days before commencing cleanup (but only if all procedural elements are followed)

What Ifs

- **EPA 30-day response timeline exceeded:** Cleanup may proceed according to the information provided to EPA in the notification provided all procedural notification requirements satisfied; however, still required to comply with regulations
- **Missing information:** EPA may deem notification insufficient and require additional information (761.61(a)(3)(ii))
- **Doesn't check all the boxes:** Procedural requirements not met; EPA can require additional information or action
- **Flexibility:** Emergency Waivers (761.61(a)(3)(iii))

Self-Implementing (continued)

Prescriptive Approach for Sampling

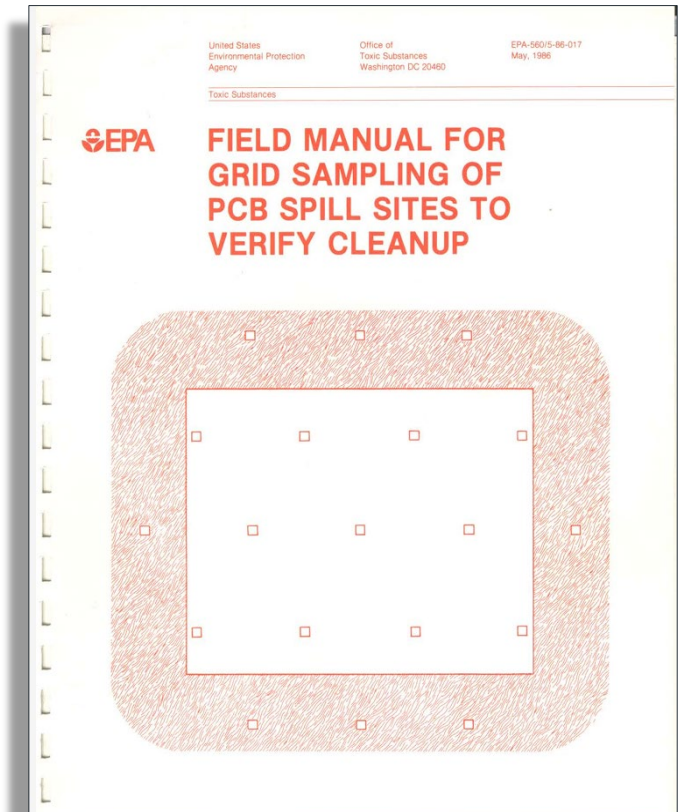
- Must comply with ALL sampling and extraction/analytical procedures

Characterization Sampling

- In-situ (as found) sampling with no compositing
- Subpart N – 3-meter (10 foot) N-S grid, but Subpart O if segregating for disposal
- Vertical sampling requirements not clearly specified so need to consider dilution provisions when designing SAP

Verification Sampling

- Subpart O – 1.5-meter (5 foot) grid
- Rubric for determining minimum number of samples
- Strictly speaking, sample core intervals should be no more than 7.5-centimeters (3 inches) and each sample must meet cleanup level
- Porous surfaces – Region 1 Porous Surfaces SOP
- Compositing allowed per specific rules



Self-Implementing (continued)

761.61(a) REMEDY AVENUES CHEAT SHEET				
PCB Concentration in Soil (parts per million)	Unrestricted Site Use	Deed Restriction*	Cap**	Fence***
A.) High Occupancy Area (> 6.7 hours/week)				
≤ 1	Yes	No	No	No
> 1 but ≤ 10	No	Yes	Yes	No
B.) Low Occupancy Area (< 6.7 hours/week)				
≤ 25	No	Yes	No	No
> 25 but ≤ 50	No	Yes	No	Yes
> 25 but ≤ 100	No	Yes	Yes	No

* When cleanup includes a cap or fence, or low occupancy designation a deed restriction must be recorded.

** A cap shall consist of any of the following: concrete or asphalt with a minimum thickness of 6-inches, or soil with a minimum thickness of 10-inches and:

- Permeability $\leq 1.0 \times 10^{-7}$ cm/sec
- 30 percent passing No. 200 Sieve
- Liquid Limit > 30
- Plasticity Index > 15

*** Fence will be marked with the PCB ML mark

Self-Implementing (continued)

Disposal of PCB Remediation Waste

- **Liquids (see 761.60(a) and 761.79)**
 - Exceptions for inadvertently generated liquids from precipitation and load separation during transport.
 - The facility must be able to deal with these liquids.
- **≥ 50 ppm (dewatered waste)**
 - Existing TSCA facilities
 - RCRA hazardous waste landfill
- **< 50 PPM (dewatered waste)**
 - Existing TSCA facilities
 - RCRA hazardous waste landfill
 - State-approved solid waste landfill

PCB Remediation Waste Types/Examples*

Bulk PCB Remediation Wastes

- soil
- dredged materials
- gravel
- mud
- sediments
- sludge (industrial, sewage)

Non-Porous Surfaces

- building stone (impermeable polished)
- ceramics (smooth glazed)
- glass (smooth)
- metal (smooth uncorroded)
- plastics (high density)

Porous Surfaces

- asphalt
- building stone (porous)
- ceramics (unglazed)
- concrete and cement
- plaster
- plastics (low density)
- paint or coating on metal

Liquid PCB Remediation Wastes

- aqueous decantate from sediment
- leachate
- removed water from bulk PCB remediation wastes
- water in direct contact with PCBs (e.g., in contact with oil or soils containing PCBs)

*See 40 CFR 761.3 for definitions of these PCB remediation waste types.

Self-implementing (continued)

Documentation: Planning vs. Closure

Planning – EPA (see 761.61(a)(3) & EPA checklist from Streamlining Tool ¹)

- Cover letter
- Site background/history
- Nature of contamination
- SOP Summary
- Site map
- Copies of analytical
- Proposed technology & approach
- Certification
- QA/QC Plan
- If cap, provide design and x-sections



Closure - EPA

- EPA may require a completion report under its Approval
- Certification for recording of deed restriction, if applicable

Integration with State Programs

- Same content can be integrated into state program plans & closures

¹ [PCB Facility Approval Streamlining Toolbox \(FAST\): A Framework for Streamlining PCB Site Cleanup Approvals \(epa.gov\)](https://www.epa.gov/pcb/pcb-facility-approval-streamlining-toolbox-fast)

Performance-Based Cleanup and Disposal (§ 761.61(b)(1))

Implementing and Documentation Requirements: Planning vs. Closure

Planning – EPA

- Allows for faster cleanup; no advance notification to EPA required
- Excludes certain sites from the cleanup option specified under (b)(1)
- Pre-cleanup notification to EPA not required, but may consult with EPA on objectives for work
- Specifically details cleanup and/or disposal requirements
- Disposal in TSCA-permitted facilities or RCRA C landfill for non-liquids



Closure - EPA

- Project completion documentation required for submittal to EPA within 30 days of final shipment of waste offsite; record maintenance is also required (761.125(c)(5))
- No established timeline for EPA review/response to submittal.
- EPA can request additional information/actions to demonstrate that cleanup levels have been achieved.

Integration with State Program

- Follow state program - dictates where PCBs are reportable at the state level

Performance-Based Disposal (§ 761.61(b)(2))

Documentation: Planning vs. Closure

Planning – EPA

- No specific plan required for submittal to EPA
- Does not establish cleanup standards
- Only specifically details disposal requirements (TSCA-permitted facility or RCRA C for non-liquids)
- May consult with EPA on objectives for the proposed work



Closure - EPA

- No closure documentation/reporting specifically indicated under this provision in the regulations
- Owner is responsible for any PCBs that remain above the cleanup levels specified under § 761.61(b)(1)

Integration with State Program

- Follow state program - dictates where PCBs are reportable at the state level

Risk-Based Disposal Approval (a.k.a., 761.61(c))

- **Typical Use** – Complex or large sites and all media types, including sediment and groundwater
- **EPA Involvement**
 - Requires written EPA approval
 - EPA may engage contractor support for highly technical sites
 - EPA review period not stipulated and can be extensive
- **Notification** – A public notification process may be required
- **Risk Assessment** – State and Federal programs will likely be different
- **Other Use** – Avenue for EPA to approve reasonable modifications to prescriptive (e.g., Self-Implementing) procedures (a.k.a., blended approval) and storage requirements



¹ [PCB Facility Approval Streamlining Toolbox \(FAST\): A Framework for Streamlining PCB Site Cleanup Approvals \(epa.gov\)](https://www.epa.gov/pcb/pcb-facility-approval-streamlining-toolbox-fast)

Site Remediation Buyer's Guide



Program	Flexibility	Timing	Cost ²
Self-Implementing (SIP) (761.61(a))	Moderate ¹	Moderate	Planning – \$ Implementation – \$ to \$\$ Disposal – \$ to \$\$\$
Performance-based (761.61(b)(1))	Limited/Low	Advantageous	Planning – \$ Implementation – \$\$ to \$\$\$ ³ Disposal – \$\$\$ to \$\$\$\$ ⁴
Performance-based (761.61(b)(2))	Limited/Low	Advantageous	Planning – \$ Implementation – \$ Disposal – \$\$\$ to \$\$\$\$ ⁴
Risk-based cleanup and disposal (761.61(c)) ⁵	Advantageous	Long	Planning – \$\$ to \$\$\$\$ Implementation – \$\$\$ to \$\$\$\$ Disposal – \$ to \$\$\$

1 – Departures from SIP, if allowed, lead to blended approval. 30-day approval not applicable in this case

2 – Highly project/site specific

3 – Post completion report may delay project closure/completion for redevelopment/reuse of site

4 – Limited/expensive disposal options

5 – Not including blended approval discretion exercised for SIP modifications/departures



Emergency Situations § 761.66 & PCB Spill Cleanup Policy Subpart G

Emergency situation means adverse conditions caused by manmade or natural incidents that threaten lives, property, or public health and safety; require prompt responsive action from the local, State, Tribal, territorial, or Federal government; and result in or are reasonably expected to result in:

(1) A declaration by either the President of the United States or Governor of the affected State of a natural disaster or emergency; or,

(2) an incident funded under FEMA via a Stafford Act disaster declaration or emergency declaration.

Examples of emergency situations may include civil emergencies or adverse natural conditions, such as hurricanes, earthquakes, or tornados.



What is Emergency Situation:

Added definition for “emergency situation” (§ 761.3 and 761.123)

New provisions under § 761.66 for cleanup of PCBs spilled in emergency situations that:

- Allow individuals to request a waiver from the specific requirements of §§ 761.60, 761.61, 761.62, and 761.65.
- Waiver Request must include:
 - Information on spill
 - Description of regulatory requirements to be waived/modified and an explanation of why compliance would be impracticable
 - Plan for how the waste would be managed if relief described was granted and how the proposed management does not pose an unreasonable risk
 - Proximity to sensitive ecosystems or populations and how those areas and potential impacts will be addressed
- Also included provisions in the Spill Cleanup Policy under Subpart G that would be available in an emergency situation that:
 - Allows waste to be cleaned up/ managed based on PCB concentrations “as-found” when not able to determine source concentration.
 - Added timeframe for completing notification/reporting to 48 hrs after adverse conditions preventing notification have ended

Photos from November 2006 Incident



Spill from a Pole-Top Transformer



- Bank closed 4 days
- 4 dogs decontaminated
- ~\$150,000 cleanup cost



PCB Bulk Product Waste

PCB Bulk Product Waste (definition under § 761.3)

“PCB bulk product waste means 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.”

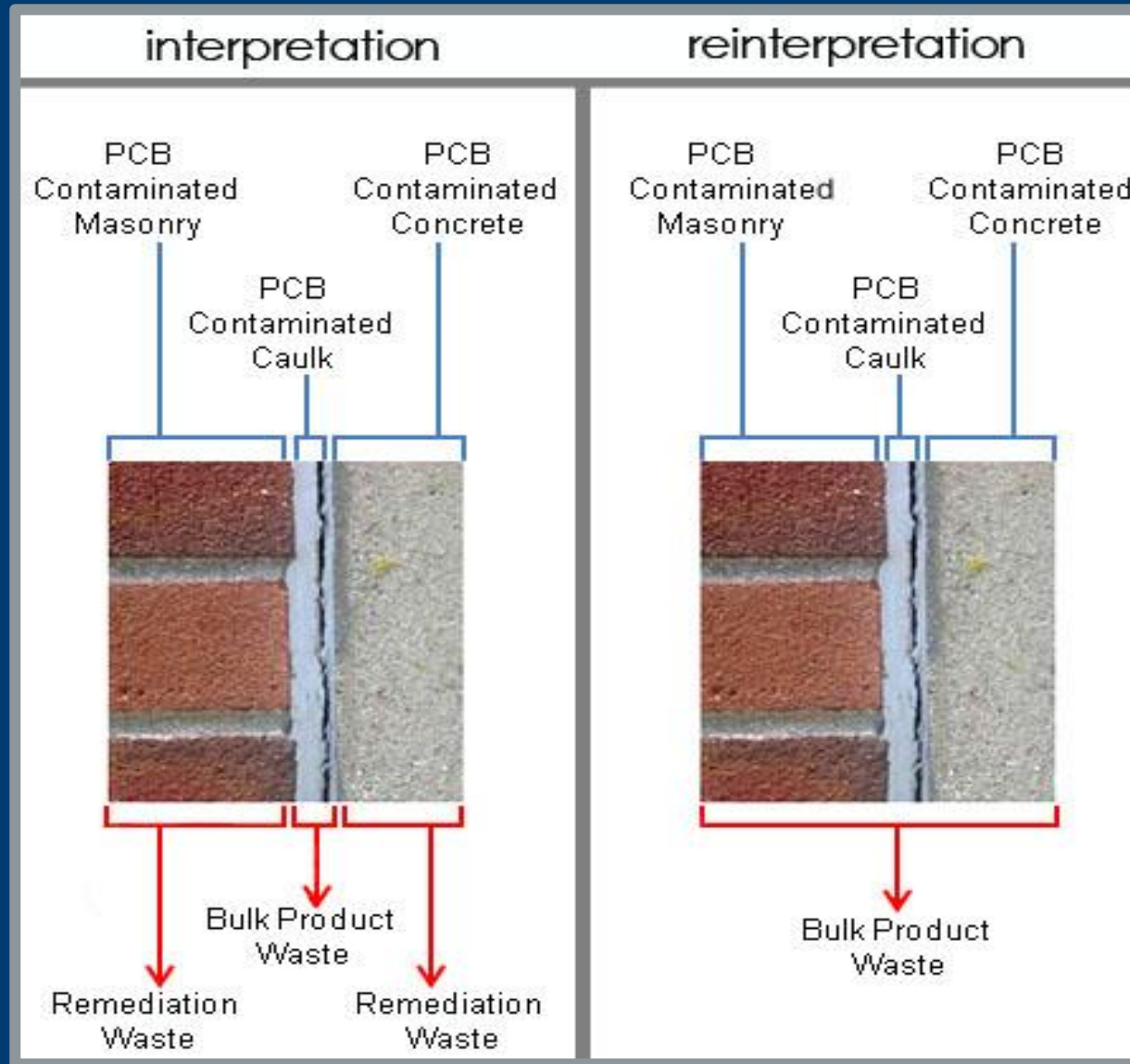
Uses of Aroclors in Manufactured Products:

- ✓ Dried oil-based paints
- ✓ Fluorescent light ballasts
- ✓ Floor finishes
- ✓ Fire retardants
- ✓ Thermal insulation materials
- ✓ Caulk/sealants/ waterproofing
- ✓ Coatings for wire/electrical gear
- ✓ Adhesives/mastics
- ✓ Auto/household shredder fluff

Disposal of PCB Bulk Product Waste (761.62)

- Manufactured products containing PCBs have been found in many buildings and structures. Concentrations can be in the % levels.
- The use of PCBs in non-liquid manufactured building products at ≥ 50 ppm is prohibited under TSCA. Unauthorized product must be removed/disposed.
 - Performance-based disposal
 - Disposal in Solid Waste Landfill for specific products (requires notification to landfill)
 - Risk-based Disposal Approval
- **Other considerations: The PCBs from the manufactured source can migrate to surrounding materials (air, soil, masonry).**





<https://www.epa.gov/pcbs/polychlorinated-biphenyl-pcb-guidance-reinterpretation> (2012)



Excluded PCB Products

- Must meet all criteria under § 761.3
 - ✓ concentration (must be < 50 ppm PCBs)
 - ✓ sold/distributed in commerce prior to 1984
 - ✓ no dilution
- May be left in place without further EPA restrictions/requirements
- State Requirements may require removal



Reflection on the Regulations

- Are there regulatory or policy changes coming that we should prepare for (i.e., what's coming down the road)?

FROM EPA'S WEBPAGE in February 2024:

“Climate Change Resilience Measures in PCB Approvals:

On December 12, 2023, EPA issued a draft memorandum for public comment that communicates EPA's approach on incorporating climate change resilience measures into PCB approvals. EPA encourages project managers overseeing PCB approvals to assess whether proposed PCB cleanup, storage, and disposal controls will be resilient to the impacts of climate change. We also emphasize the importance of considering climate change when determining that there is no unreasonable risk to human health or the environment. We identify measures that strengthen the resilience of PCB cleanup, storage, and disposal controls to climate change impacts, ensuring the protection of human health and the environment over time. [Read the draft memorandum \(pdf\)\(444 KB\).](#)

We accepted comments on the draft memo through January 26, 2024, and are working on reviewing the comments and finalizing the memo.”



Select PCB Guidance Documents

- [Polychlorinated Biphenyls \(PCBs\) | US EPA](#)
- Developed public health levels for PCBs in indoor air for schools
 - [Exposure Levels for Evaluating Polychlorinated Biphenyls \(PCBs\) in Indoor School Air | US EPA](#)
- ORD Research – PCB mitigation and exposures assessment in buildings
 - [Additional Information and Research on Polychlorinated Biphenyl \(PCB\) Contamination and Mitigation in Buildings | US EPA](#)
- 2012 *PCB bulk product waste* reinterpretation
 - [Polychlorinated Biphenyl \(PCB\) Guidance Reinterpretation | US EPA](#)
- November 2013 Ship Sampling Guidance
 - [Polychlorinated Biphenyls \(PCBs\) in Ships | US EPA](#)
- June 2014 PCB Q & A Manual
 - [Revisions to the PCB and Q and A Manual \(June 2014\) \(epa.gov\)](#)
- June 2017 PCB Facility Approval Streamlining Toolbox
 - [PCB Facility Approval Streamlining Toolbox \(FAST\): Streamlining the Cleanup Approval Process | US EPA](#)
- May 2021 PCBs in Building Materials Fact Sheet
 - [PCBs in Building Materials - Determining the Presence of Manufactured PCB Products in Buildings or Other Structures | US EPA](#)
- September 2023 Technical Guidance for Determining the Presence of Manufactured PCB Products in Buildings and Other Structures
 - [Technical Guidance for Determining the Presence of Manufactured PCB Products in Buildings and Other Structures | US EPA](#)
- March 2024 Groundwater Monitoring of PCBs: Filtered vs Unfiltered Sampling
 - [Groundwater Monitoring of Polychlorinated Biphenyls: Filtered vs. Unfiltered Sampling | US EPA](#)

Thanks!

Let us know if you have any questions.



Call Us:

Kim Tisa

978.549.4360

Mark Robinson

470.393.8336



Email Us:

KTisa@TRCcompanies.com

MBRobinson@TRCcompanies.com



Visit Us:

TRCcompanies.com