This 5-part webinar series provides an overview of the federal polychlorinated biphenyl (PCB) regulations administered by the United States Environmental Protection Agency (EPA) pursuant to the Toxic Substances Control Act (TSCA), as well as corresponding EPA policy and guidance. Each webinar addresses regulations, policy and guidance current as of the date the webinar is first presented; please note that EPA’s PCB regulations, policy and guidance are subject to change. This webinar series, including the recorded presentations and the prepared slides, are intended to serve as a resource to facilitate members’ understanding of the federal PCB regulatory requirements and do not represent legal advice or legal counsel. Individuals with specific compliance and/or enforcement questions are encouraged to consult appropriate legal counsel.

This webinar is intended only for members of APPA, NRECA and USWAG and should not be shared outside of those organizations or their members.
Webinar #1:
Definitions and Assumptions
Conditions for Use
Storage and Marking
Background:

TSCA Section 6(e) and the PCB Use Authorizations
TSCA § 6(e) prohibits the manufacture, processing, distribution, or use of PCBs, except:

- Totally enclosed uses
- Uses explicitly authorized by EPA rule
- Manufacture, processing, or distribution that has been exempted by EPA

* EPA’s use authorizations – 40 C.F.R. Part § 761.30
Key Regulatory Definitions
“PCB”

- A liquid or non-liquid material containing $\geq 500$ ppm PCB
- Contaminated surfaces at $> 100$ $\mu$g/100 cm$^2$
“PCB-Contaminated”

* A liquid or non-liquid material containing $\geq 50$ ppm but $< 500$ ppm PCB

* Contaminated surfaces at $> 10$ $\mu$g/100 cm$^2$ and $<100$ $\mu$g/100 cm$^2$
“Non-PCB”

- A liquid or non-liquid material containing < 50 ppm PCB

- Contaminated surfaces at \( \leq 10 \, \mu g/100 \, cm^2 \)
Definitions – Overview of Equipment & Items

* Capacitors (Small, Large)
* Transformers (PCB Xfmrs, PCB-Contaminated)
* PCB-Contaminated Electrical Equipment
* PCB Articles
* PCB Containers
* PCB Article Containers
* PCB Items
“Small Capacitor”

- < 3 lbs of fluid
- If total volume < 100 cubic inches, assume < 3 lbs fluid
- If total volume > 200 cubic inches, assume > 3 lbs fluid
- If volume between 100-200 cubic inches and total weight is < 9 lbs. ... can assume small capacitor
“Large Capacitor”

- Contains ≥ 3 lbs of fluid
- Assume ≥ 3 lbs if total volume > 200 cubic inches
- **High-voltage** is 2,000 volts or above
- **Low-voltage** is < 2000 volts
Transformers

- “PCB Transformer” contains ≥ 500 ppm PCBs
- “PCB-Contaminated Transformer” contains ≥ 50 but <500 ppm PCBs
- “Non-PCB” → Small Transformer that contains < 3 lbs. of fluid or is dry
“Natural Gas Pipeline System”

- Natural gas gathering facilities, natural gas pipe, natural gas compressors, natural gas storage facilities, and natural gas pipeline appurtenances
Any manufactured article that contains PCBs $\geq 50$ ppm and whose surface has been in direct contact with PCBs.

Includes electrical equipment, motors, pumps, pipes, etc.
“PCB Container”

Any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface has been in direct contact with PCBs.
Any container used to contain PCB Articles or PCB Equipment whose surface has not been in contact with PCBs (e.g. small non-leaking capacitors in a 55-gallon drum)
Any manufactured item which contains a PCB Article or other PCB Equipment (e.g., microwave oven, fluorescent light ballasts, electronics, fixtures, etc.)
“PCB Item”

- PCB Article
- PCB Container
- PCB Article Container
- PCB Equipment
“Disposal”/“To Dispose”

* To intentionally or accidentally discard, throw away, or otherwise complete or terminate the useful life of PCB Items

* Includes spills, leaks, and other uncontrolled discharges
Any instance in which a PCB Article, PCB Container, or PCB Equipment has PCBs on any portion of its external surface

→ Remember: Leak = disposal!
Surfaces

“Non-Porous” – smooth unpainted solid surface that limits penetration of liquid PCBs (e.g. smooth glass and glazed ceramics, bare uncorroded metal, marble, granite)

“Porous” – any surface that allows PCBs to penetrate (e.g. painted or coated metal or wood, unglazed ceramics, concrete, asphalt)
“PCB Bulk Product Waste”

- Waste derived from manufactured products containing PCBs in a non-liquid state \( \geq 50 \) ppm at the time of disposal

- Includes fluorescent light ballasts, paint, plastics, caulk, sealants, insulating material
“Excluded PCB Products”

- PCB materials < 50 ppm PCB
- Includes, e.g., if certain conditions met:
  - Non-Aroclor inadvertently generated PCBs
  - Products contaminated with Aroclor/other PCBs from historic PCB uses
  - Recycled fluids, e.g., heat transfer and hydraulic fluids
  - Used oils
“PCB Remediation Waste”

- Waste resulting from a spill of $\geq 50$ ppm PCB

- Includes soil, rags, and other spill cleanup debris; dredged materials; sediments; contaminated porous and non-porous surfaces

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PCB Concentration
Assumptions for Use
Concentration Assumptions for Use

40 C.F.R. § 761.2

* Allow you to operate under the use authorizations without knowing the actual concentration of PCB equipment (and without having to test)

→ **Assumptions do not apply in disposal context!**

* No requirement to test prior to disposal – but have to be right.
Mineral-oil filled electrical equipment and pole-top/pad-mount distribution transformers manufactured before July 2, 1979 (or date unknown) → PCB-Contaminated
Transformer manufactured before July 2, 1979 (or date of manufacture) with ≥ 3 lbs fluid other than mineral oil (or type of fluid unknown)

➔ PCB Transformer
Concentration Assumptions for Use (cont’d)

* Capacitors – date of manufacture:
  • Post-July 2, 1979 → non-PCB (< 50)
  • Pre-July 2, 1979 → PCB Capacitor
  • Date unknown? → PCB Capacitor
Assume to be non-PCB:
- Electrical equipment manufactured after July 2, 1979
- Transformers with < 3 lbs fluid
- Circuit breakers
- Reclosers
- Oil-filled cable
- Rectifiers
PCB concentration can be established by:
- Testing equipment,
- Permanent mark/label/documentation from manufacturer, AND
- Service records/other documentation re servicing

EPA guidance also allows use of best engineering judgment
PCB Use Authorizations: Use Conditions
Use Conditions for PCB Transformers (≥ 500 ppm PCB)
- Most PCB Transformers can continue to be used for remainder of their useful lives
→ **Banned: PCB Transformers posing risk to food or feed**
Use of PCBs in Electrical Equipment: PCB Transformers

* Marking Requirements for PCB Transformers
  - PCB Transformer; means of access

* Additional Requirements
  - Inspections
  - Reclassification requirements
  - Additional restrictions (concerns re byproducts of fires)
  - Registration requirement (PCB Transformer Database)
  - Transfer of ownership (ADL requirements)
  - Inspection/maintenance records (for 3 years after disposal)
Use of PCBs in Electrical Equipment: Capacitors

* Large PCB Capacitors
  - Large PCB Capacitors in restricted-access electrical substations / restricted-access contained indoor installation may be used for the **remainder of their useful lives**
    - Marking requirements apply
      ➔ Banned: Large PCB Capacitors on voltage lines; other Large PCB Capacitors
Use of PCBs in Electrical Equipment: Capacitors

* Small PCB Capacitors
  - All intact, non-leaking Small PCB Capacitors (< 3 lbs dielectric fluid) may continue to be used for the duration of their useful lives.
PCBs may be used at any concentration in these types of equipment, for the remainder of the equipment’s useful life.

Except, Banned: Use of electromagnets ≥ 500 ppm PCB posing risk to food or feed.
Use of PCBs in Electrical Equipment: Electromagnets, Switches, Voltage Regulators

Use/storage for reuse of voltage regulators containing ≥ 3 lbs dielectric fluid and having ≥ 500 ppm PCB requires:

- Compliance with marking requirements
- Immediate reporting to NRC of any fire-related incident
- Inspection requirements (similar to PCB Transformer requirements)
- Recordkeeping requirements

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Circuit breakers, reclosers, cable; rectifiers
- Use of PCBs at any concentration authorized

Heat transfer systems and hydraulic systems
- Use of PCBs at < 50 ppm PCB authorized
Excluded PCB Products
- Broad exclusion for materials containing <50 ppm PCBs, if materials were legally manufactured, processed and distributed in commerce prior to October 1, 1984 → excluded PCB products

Additional aspects of rule
- Allows burning < 50 ppm PCB used oil for energy recovery in “qualified incinerator,” industrial furnace or boiler
- Burn pipeline liquids < 50 ppm for energy recovery
The Anti-Dilution Rule
The Anti-Dilution Rule
40 C.F.R. § 761.1(b)(5)

General Rule: Any requirement specifying a PCB concentration may not be avoided as a result of dilution, unless otherwise specifically provided.

Soils, other media contaminated by ≥ 50 ppm PCB source must be managed based on PCB concentration of the source
Exceptions – Dispose of based on actual PCB concentration of waste:

- PCB remediation waste from spills pre-April 18, 1979
- PCB remediation waste cleaned up per § 761.61(a)
- PCB-containing liquids from natural gas pipeline systems
- Lab wastes generated from R&D activities, chemical analysis
- Wastes generated during decon (unless otherwise specified by EPA)
- Multi-phasic mixtures – separate and dispose of each phase accordingly
Storage Requirements:

Storage for Reuse;
Storage for Disposal
Remember:

PCB-containing equipment is ALWAYS (...and can only be) in either:

➔ Use
➔ Storage for reuse
   or
➔ Storage for disposal
“When is an item considered to be stored for reuse as opposed to in use? …

... My company keeps a spare transformer on a pad next to an in-service transformer. The spare transformer is not energized.

... We plan to use the spare transformer in the electrical system in the event the in-service transformer fails or must be taken off-line for servicing.

Is the spare transformer considered to be in use or in storage for reuse?”
EPA:

* The spare transformer is considered to be in storage for reuse because it is not energized.
* ... The spare transformer is subject to the requirements of § 761.35.
* ... The in-service transformer is considered to be in use.
You may store a PCB Article for reuse if you

* Plan to reuse the article; and
* Maintain it in useable condition.

→ Follow the storage for reuse requirements at § 761.35

BUT...
... If you do not plan to reuse the PCB Article, or if you decide to dispose of it: the PCB Article is in **storage for disposal**

→ Must follow requirements at § 761.65
PCB Articles can be stored for reuse anywhere for up to 5 years from date of placement into storage for reuse

*Disconnected (not energized) electrical equipment

*Plan to reuse PCB Article; maintain in useable condition

*Note: Concentration assumptions for use do apply

*Includes interim storage of Articles prior to classification
Storage for Reuse (cont’d)

* Recordkeeping requirements:
  - Date of removal from service
  - Projected location and future use of Article
  - Scheduled repair date (if applicable)
Storage for Reuse (cont’d)

* Extension requests may be made to EPA Regional Administrator
  - **Note**: Current EPA policy is to deny all requests

* PCB Articles can be stored **indefinitely** in:
  - Facility meeting § 761.65(b) design requirements
  - RCRA Part B-permitted facility

→ *Recordkeeping requirements DO NOT APPLY*
761.65(b) Facility requirements:
- Adequate roof and walls to protect from rain water
- Cement, concrete, other impervious floor surface with continuous ≥ 6" curbing
- Adequate containment volume
- No drains, expansion joints, sewer lines, other openings
- Not located within 100-year flood elevation
Exceptions:

- Non-leaking, structurally undamaged PCB Large HV Capacitors and PCB-Contaminated Electrical Equipment
  
  • May be stored on pallets next to storage facility
    - Must be adequate storage within facility (equal to 10% of equipment stored outside)
Storage for Disposal – Exceptions (cont’d)

**Exceptions (cont’d):**

- Bulk storage in tanks of liquid PCBs (> 119 gallons)
  - OSHA-compliance containers
  - SPCC Plan prepared
  - Records maintained
    - Quantity, dates, disposition of each batch of PCBs added to, removed from bulk container
Inspections of storage area (§ 761.65(c)(5))
- Storage facility: Every 30 days
- Stored outside facility: Weekly
* Temporary storage – up to 30 days (§ 761.65(c)(1))
  - Non-leaking PCB Articles and Equipment
  - Leaking PCB Articles and Equipment, if placed in non-leaking container, sufficient sorbent material
  - PCB Containers with non-liquid PCBs (e.g., soil)
  - PCB Containers with liquid PCBs if SPCC Plan prepared
No storage for disposal requirements apply to **drained** PCB-Contaminated electrical equipment.
All Articles/Containers stored for disposal must be dated when placed in storage for disposal

- Must be disposed of within one year
- One-year clock begins running when decision to dispose is made

Best practice – Send waste to storage for disposal facility within 9 months
Extension of one-year time limit:
- Take steps to secure disposal within 270 days from disposal decision
- Written request to EPA RA at least 30 days before expiration of time limit
- Other conditions

Conditional storage at cleanup/generation site for PCB Bulk Product Waste/PCB Bulk Remediation Waste
Marking Requirements

Figure 1

Figure 2
The following must bear the $M_S$ or $M_L$ mark:

- PCB Transformers
- Large High and Low Voltage PCB Capacitors
- PCB Voltage Regulators (≥ 500 ppm PCB)
- PCB Containers
- PCB Article Containers …
  - … If they contain articles/equipment that are subject to PCB marking requirements
And …:

- All PCB Storage Areas
- Certain types of non-electrical equipment (e.g., hydraulic and heat transfer systems)
- Transport vehicles if they transport:
  - More than 45 kg (99.4 lbs) of liquid PCBs in containers, or
  - One or more PCB Transformers (≥ 500 ppm PCB)
- Access to PCB Transformer/PCB Voltage Regulator locations (e.g., doors)