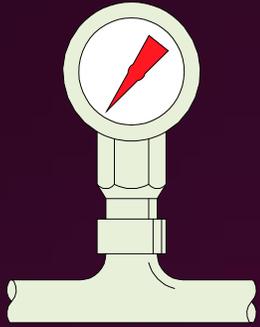


PCB Cleanups 101 (and then some)



Sarah Watson
United States Environmental Protection Agency Region 4

Physical & Chemical Properties



Low vapor pressure



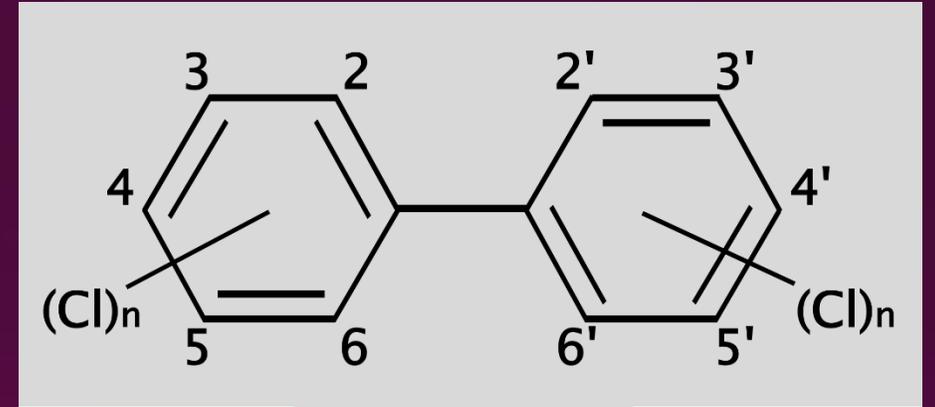
Colorless



Odorless



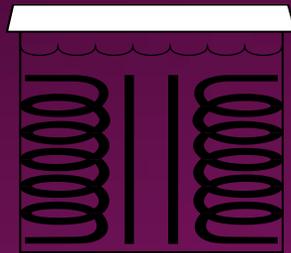
Flame retardant



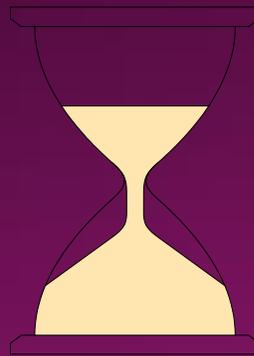
209 Congeners



Viscous liquid or solid



Low electrical conductivity



Persistent



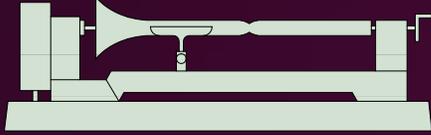
Lipophilic



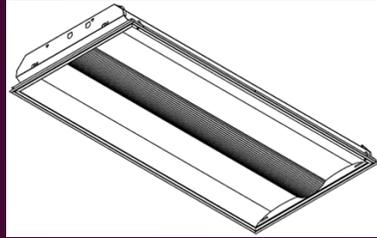
Used as mixtures of congeners
commonly called Aroclors

(Aroclor 1254 → 54% chlorine by mass)

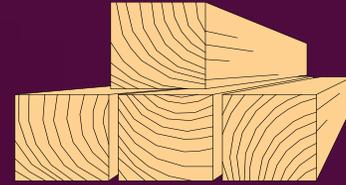
Uses of PCBs (~1950-1978)



Cutting oils



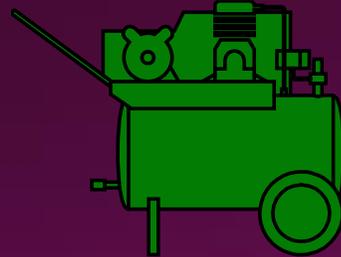
Fluorescent light ballasts



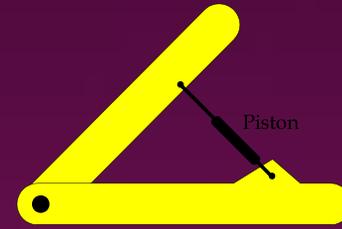
Construction materials (ex. caulk, sealants, tiles, etc.)



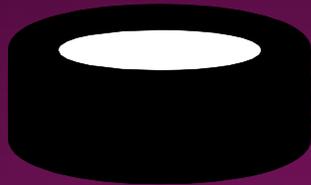
Plasticizer



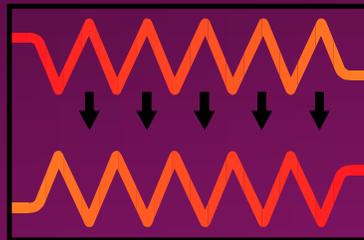
Vacuum pump fluid



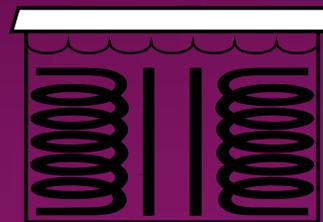
Hydraulic fluid



Gaskets & Damping felt



Heat transfer fluid



Dielectric fluid

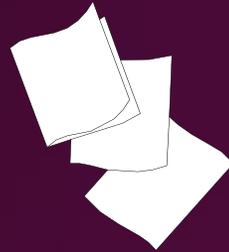


Lubricants

Uses of PCBs (continued)



Inks and paints



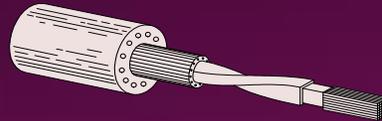
Carbonless copy paper



Microscopy
(mounting media & immersion oil)



Dedusting Agents



Electric cable insulation



Fuel tank coatings



Adhesives



Pesticide extenders



Casting Wax

Why do we care?

Human Health

Non-carcinogenic

- Immuno-suppressor
- Inhibits development
- Inhibits reproduction
- Cardiac disease
- Endocrine disruptor
- Liver disease
- Diabetes

Carcinogenic

PCBs are a known carcinogen to animals and a probable human carcinogen.

The Environment

- Bio-accumulative
- Persistent
- Mobile

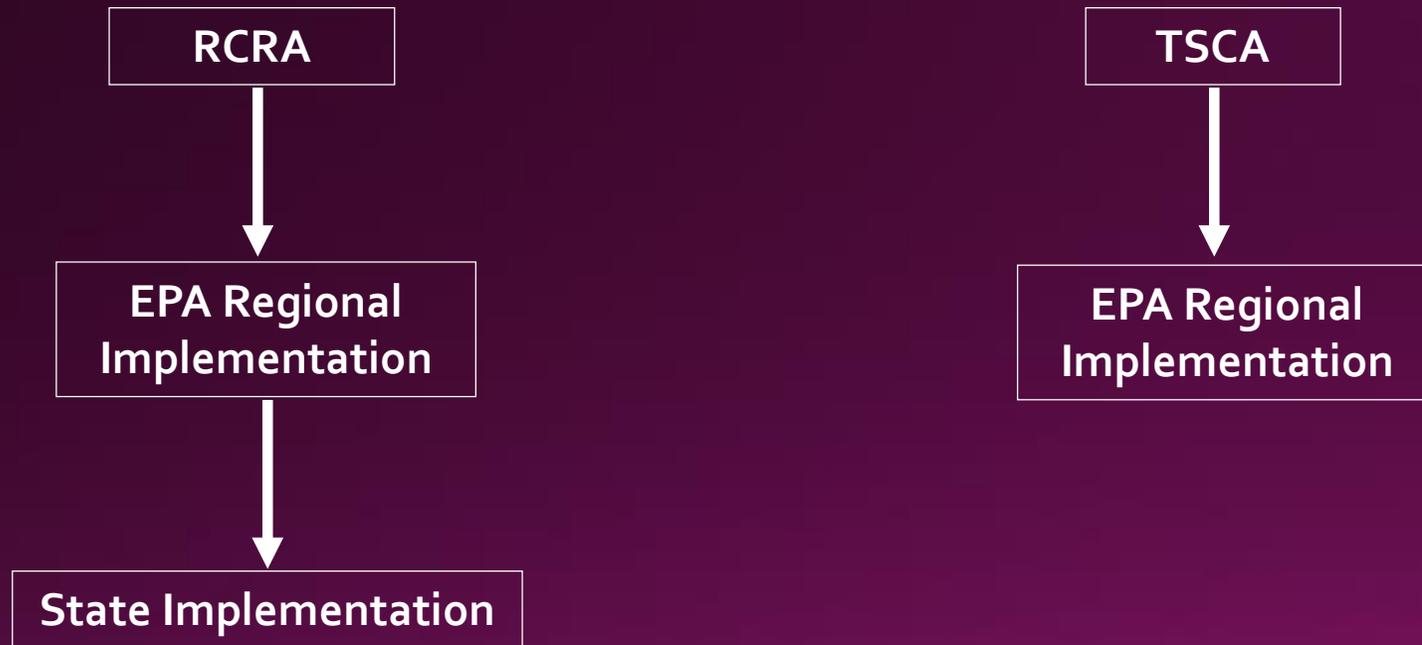


Regulatory History

- **Manufactured in U.S. from 1929 – 1979**
- **TSCA passed by Congress in 1976**
 - TSCA Section 6(e) banned the manufacture and use of PCBs
 - Allowed EPA to authorize limited uses through a rulemaking process
 - EPA issued regulations in 1979 on the use, manufacturing, processing, distribution in commerce, cleanup, and disposal of PCBs
 - 1998 “Mega Rule” – major changes to the cleanup and disposal sections
- **TSCA PCB Regulations found at 40 CFR 761**
- **PCB Cleanup and Disposal Program evolved separately from other cleanup and disposal programs**
 - Transferred most of the program to the “RCRA Office” (Office of Resource Conservation and Recovery) in 2007 but the regs stayed the same
 - Regulations regarding the use of PCBs are still managed by the TSCA program office

Implementation of PCB Regs

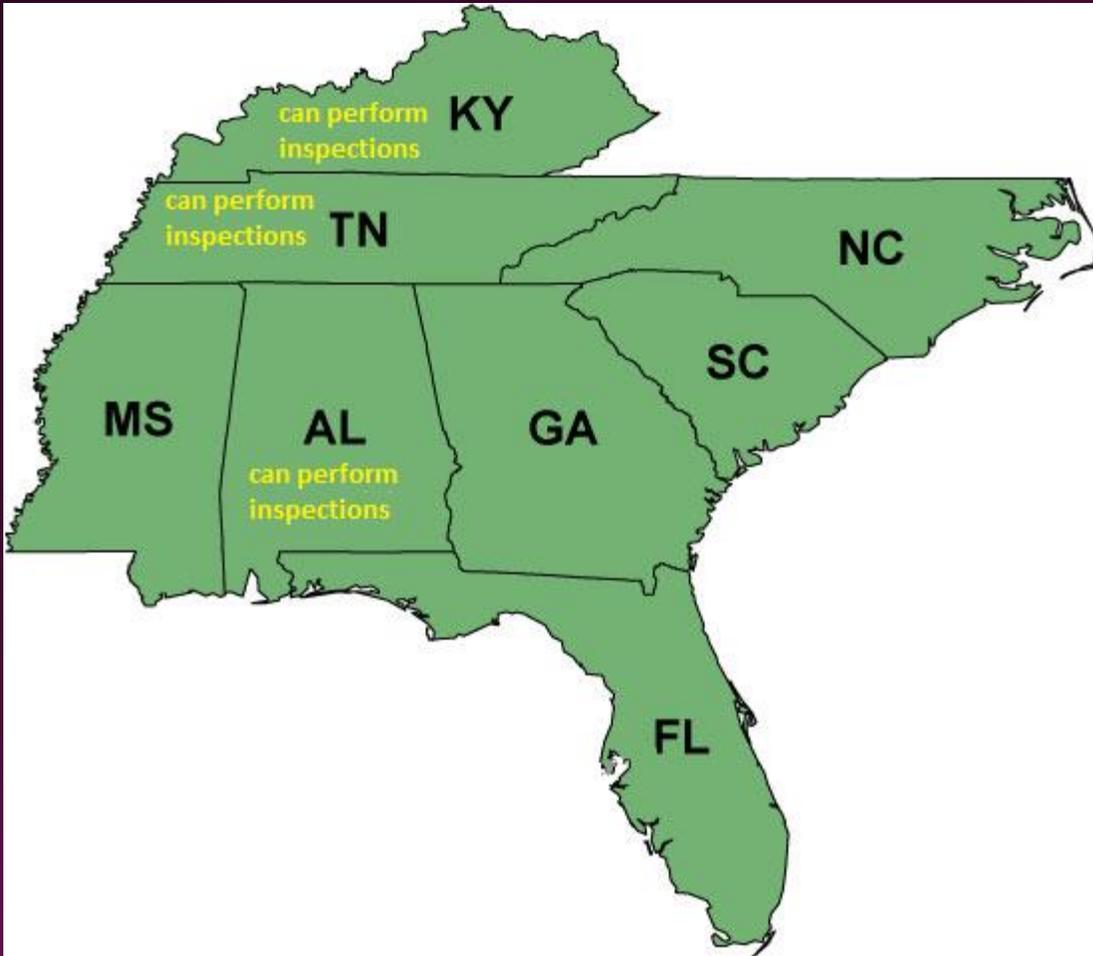
Unlike RCRA, TSCA is not delegated to States



PCBs at your cleanup?
Contact your Regional PCB Coordinator early



PCBs not delegable to states



States may have their own cleanup levels under RCRA and/or cleanup PCBs as part of state Superfund programs or voluntary cleanups, but most stringent cleanup # must be used

Main Types of PCB Wastes

- **PCB Liquids**

- Liquids like dielectric fluid ≥ 50 ppm



- **PCB Articles**

- Transformers, capacitors, natural gas pipelines, electrical equipment
- "PCB-Contaminated" if 50-500 ppm; "PCB" if ≥ 500 ppm



- **PCB Bulk Product Waste**

- Non-liquids that are currently > 50 ppm and were manufactured to contain PCBs
- E.g. Caulk, paint, plastics
- May be disposed of in municipal landfills at any concentration
 - If state allows & landfill is able / willing to accept it



- **PCB Remediation Waste**

- Contaminated from a spill or release of PCBs (e.g., soil, concrete, masonry)
- Regulatory requirements depend on *spill date & source concentration*



PCBs in Building Materials

- Paint, caulk, fluorescent light ballasts
- No clear and concise regulatory pathway to deal with them
- Current regulation change under way:
rescinding use authorization of FLBs in daycares/schools



A typical pre-1979 PCB-containing fluorescent light ballast (FLB)

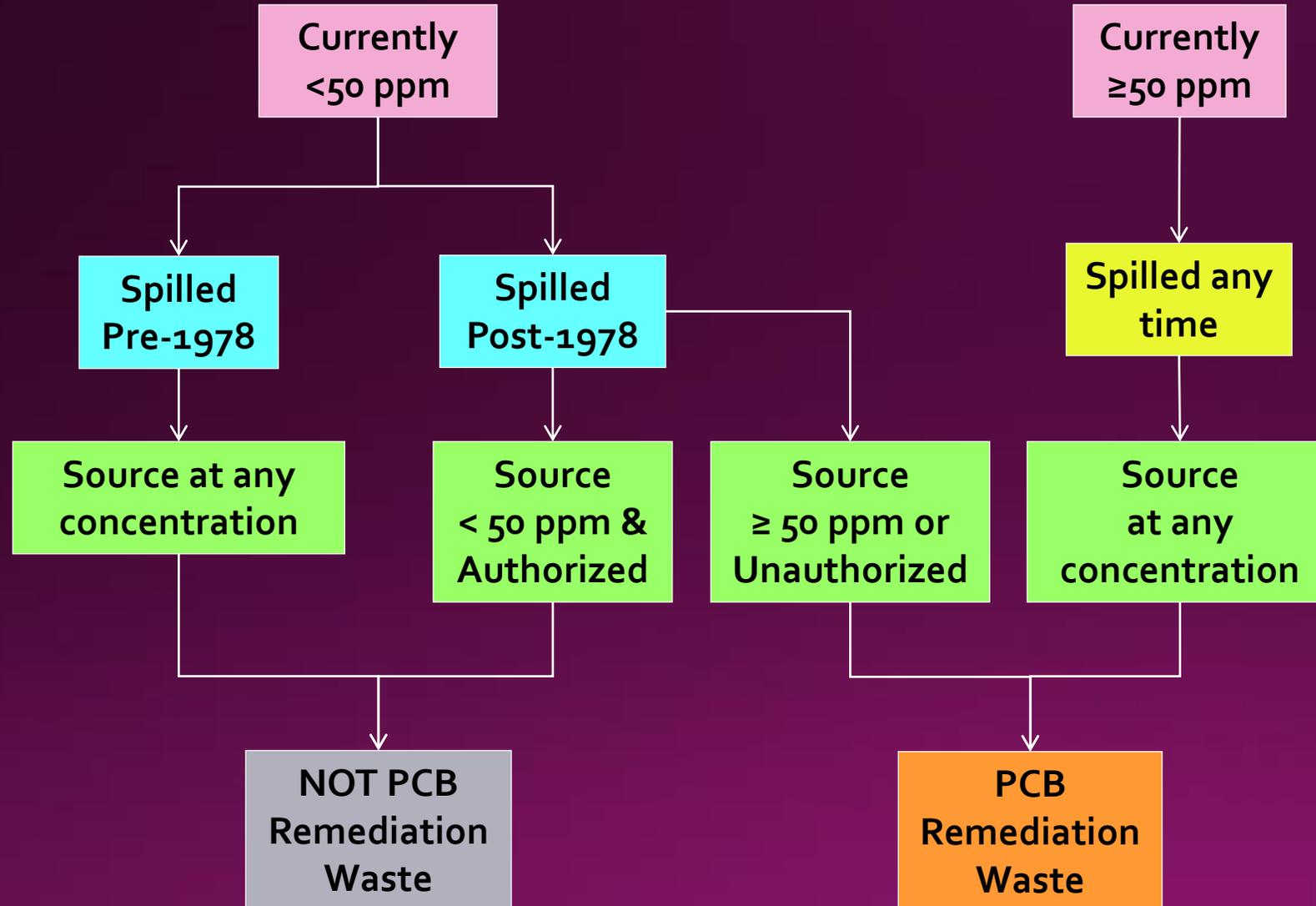


A typical Non-PCB containing fluorescent light ballast. The ballast has a "No PCBs" marking on the top of the ballast and the text "electronic ballast". Only magnetic fluorescent light ballasts contained PCBs.



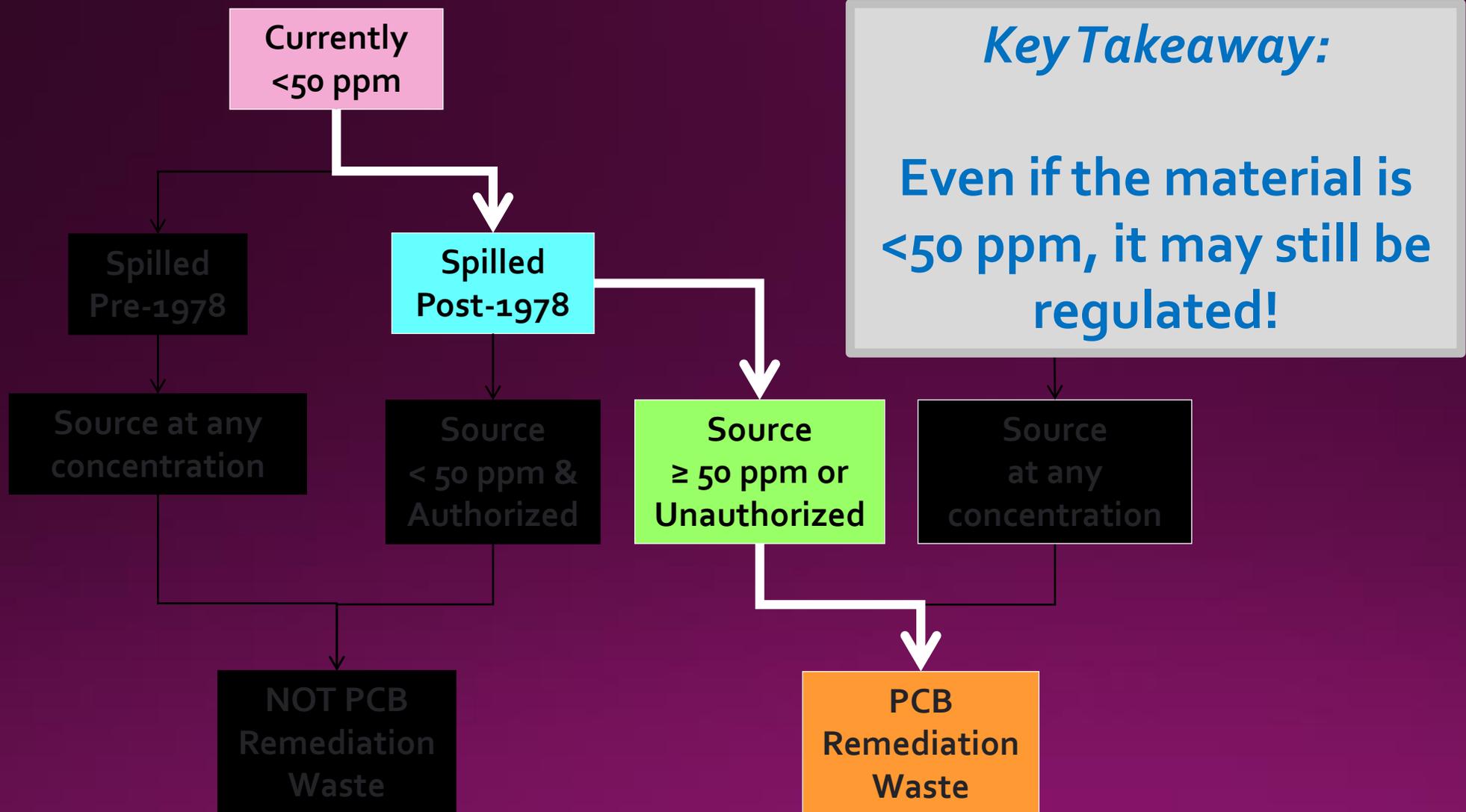
Definition of "PCB Remediation Waste"

This is a generalized depiction, see 40 CFR 761.3 for full detail



Definition of PCB Remediation Waste

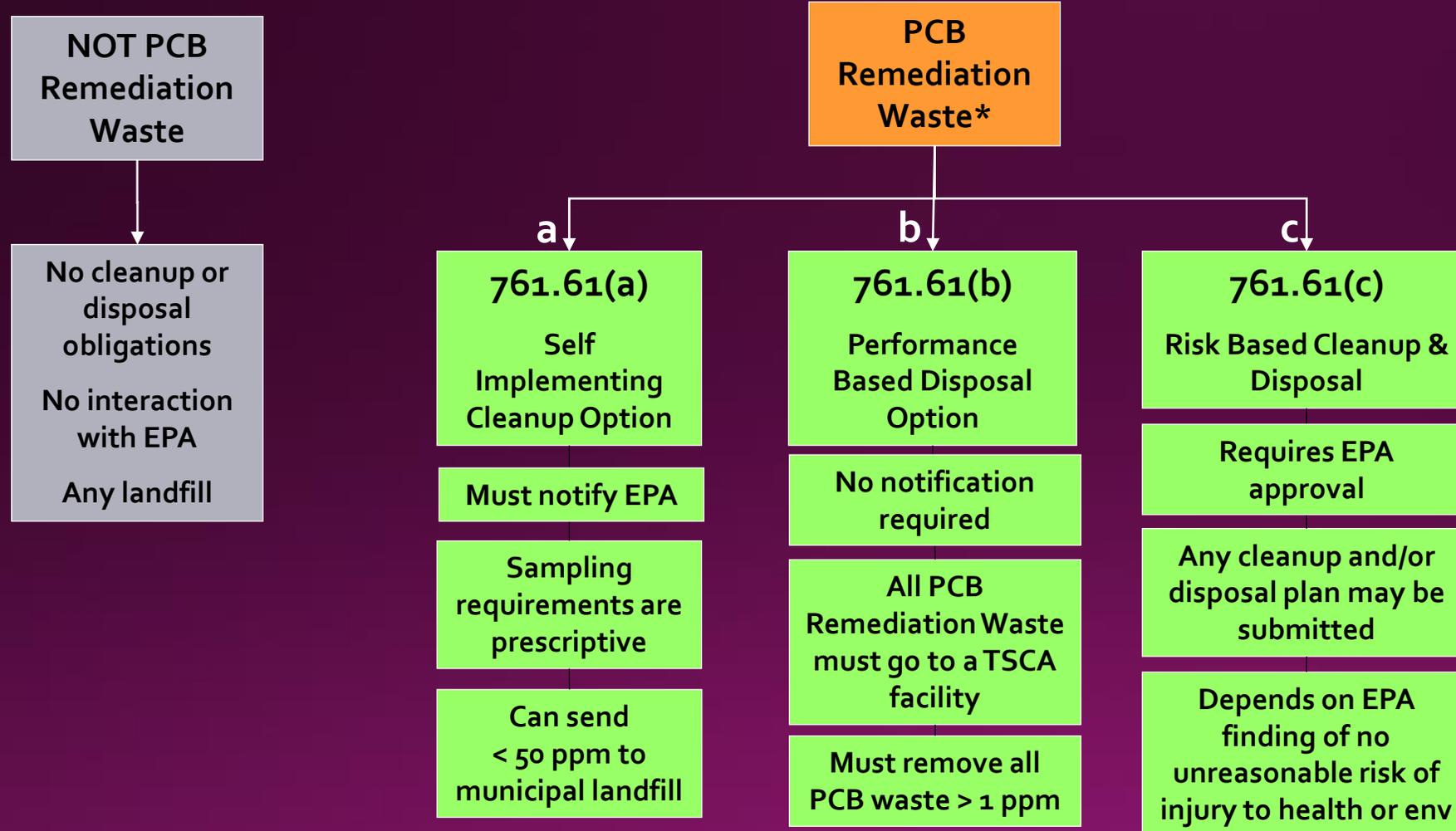
This is a generalized depiction, see 40 CFR 761.3 for full detail



Key Takeaway:

Even if the material is <50 ppm, it may still be regulated!

PCB Remediation Waste Cleanup and Disposal Option Basics



* PCB Remediation Waste resulting from a spill or release before 1978 is not subject to the cleanup requirements of the regulations (unless the RA makes a finding), but is subject to the disposal requirements if it is picked up (see 40 CFR 761.50(b)(3)).

Spill Cleanup policy

- Subpart G of PCB regulations; however, it is a “policy”
- Intended for spills <72 hours old
- No need to notify EPA; however, need to keep a report



Case study 1: Grease Interceptors in SC/NC

- Illegal dumping of PCBs first discovered in South Carolina in 2013
- ~30 subsequent sites discovered
- Active criminal case
- PCBs entered wastewater systems
- Required collaboration with EPA lab in Athens due to three-phase (liquid, oil, solid) sampling matrix



Case study 2: “The cabinet case”

- 7 homes, 2 businesses contaminated as a result of a traffic accident with Knoxville Utility Board transformer
- Working closely with environmental consultant, the residents, insurer, to coordinate multi-million dollar cleanup
- Performed as a risk-based cleanup with a cleanup standard inside the homes of non-detect



In closing

- PCB cleanups are not equivalent to RCRA corrective action!
- 50 ppm is not the one-size-fits-all cleanup level
- ...when in doubt, call us!

Sarah Watson

Region 4 PCB cleanups

watson.sarah@epa.gov

404-562-8607

Ken Feely

PCB Regional Coordinator

feely.ken@epa.gov

404-562-8512