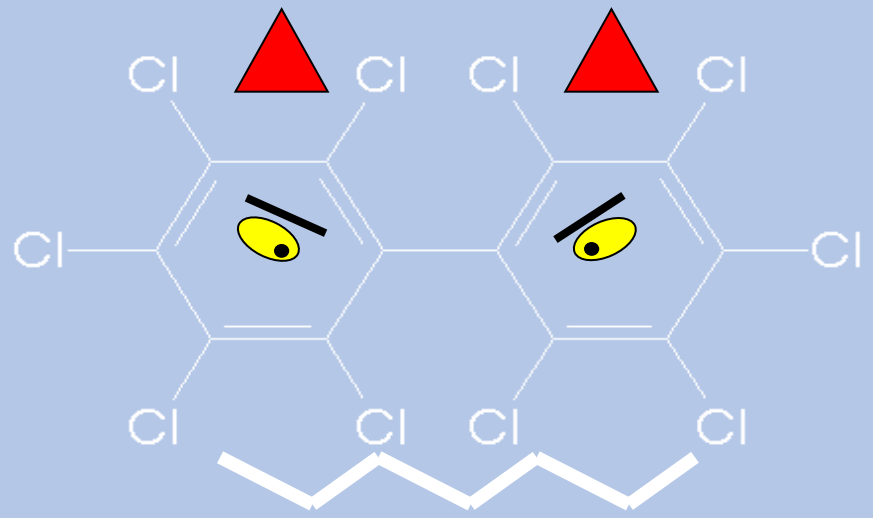
PCBs and TSCA



US EPA Region 1

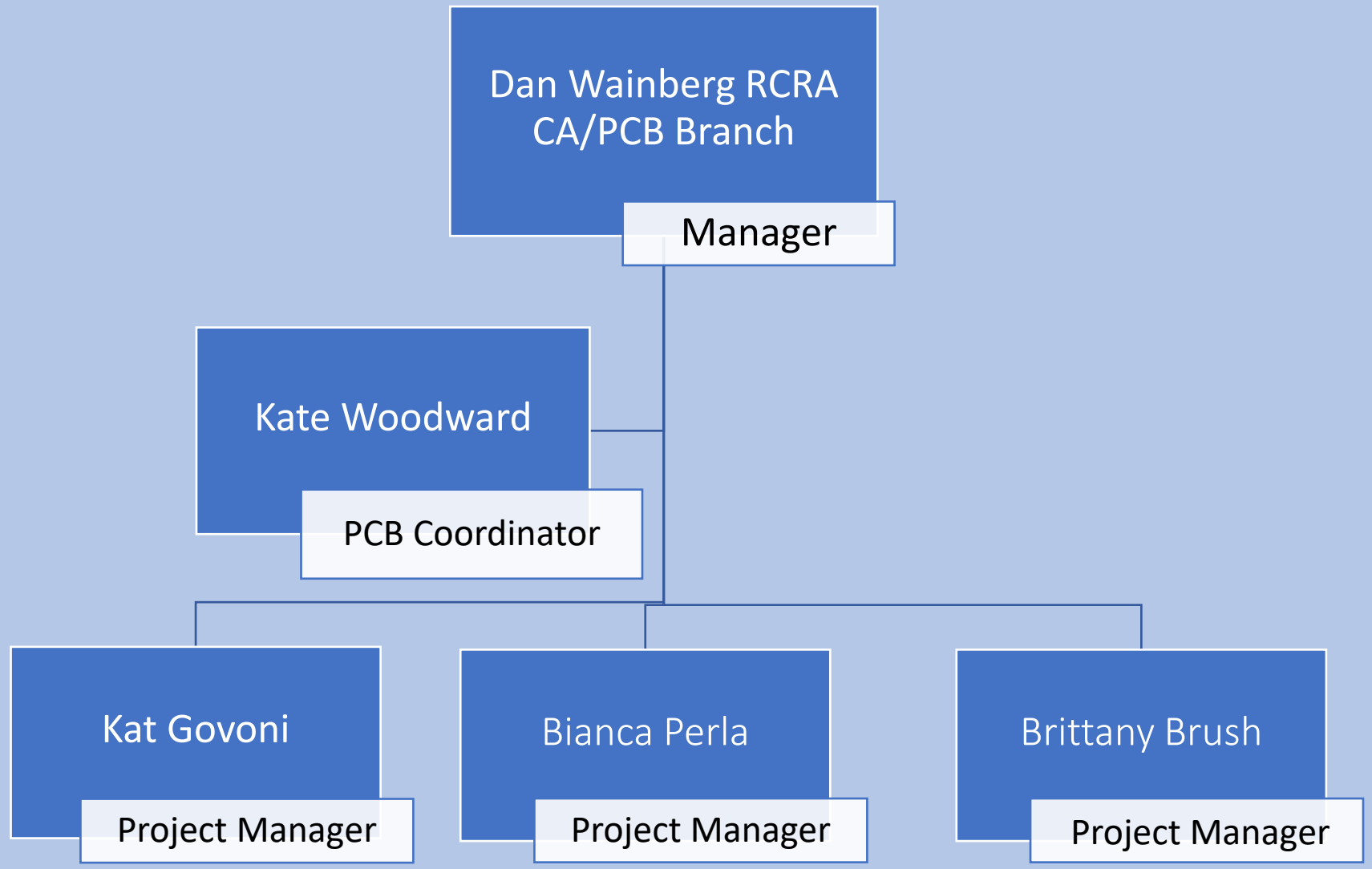
PCB Team:

Kate Woodward, Katie Govoni, Bianca Perla,
and Brittany Brush

Agenda for Presentation

- Introduce the PCB Team
- Presentation
  - What are PCBs and their uses
  - Laws and Regulations and Definitions
  - What to do if you find PCBs

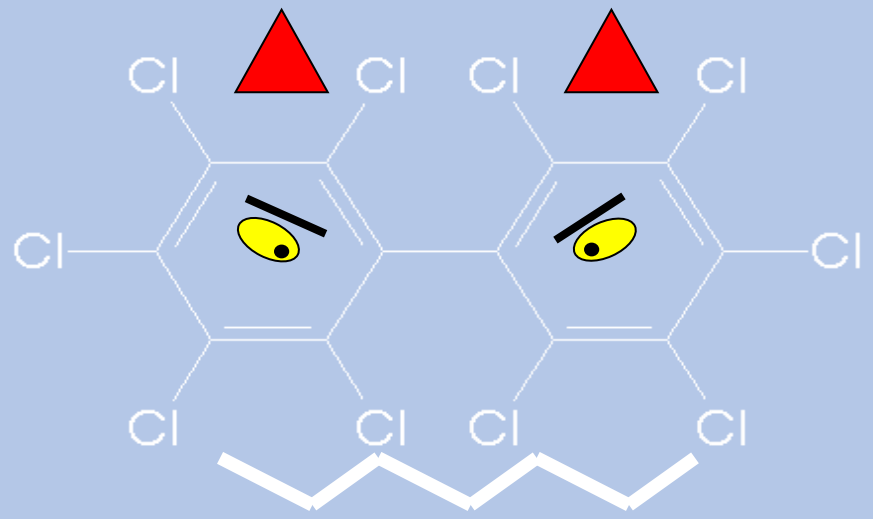
EPA-R1 PCB Team



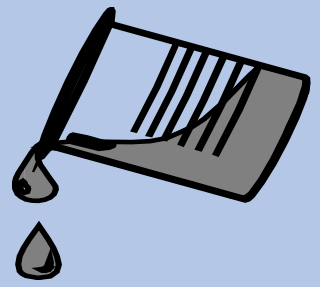
What are PCBs and their Uses?

What are PCBs?

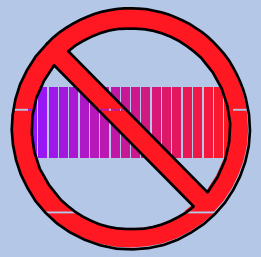
- **Polychlorinated biphenyls (PCBs):** a mixture of compounds containing the biphenyl structure with varying numbers (i.e., one to ten) and arrangements of chlorine atoms attached.



Physical Properties of PCBs

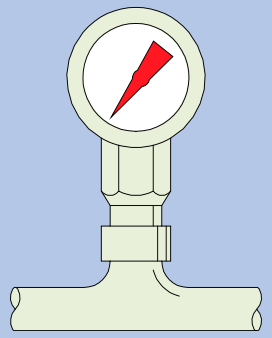


Viscous liquid or solid

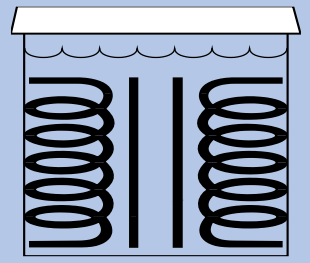


Colorless

Flame retardant



Low vapor pressure



Low electrical conductivity

Health Impacts

- Bioaccumulates in fatty tissues
- Developmental effects
  - Impaired learning and motor function
  - Delays in organ system development
- Reproductive Effects
  - Low birth weight
  - Increased infant mortality
- Immune System Suppression
  - Decreased Antibody Production
  - Increased susceptibility to disease
- Liver Damage
- Skin Effects
  - Chloroacne (acute)
  - Nail deformities

What do we know?

- Health
  - Probable human carcinogen
  - Many non-cancer effects
- All 209 congeners are found in the gas phase
- Bioaccumulate
- PCBs are found everywhere
- PCBs are still being produced (iPCBs)
- School air may be a major exposure route

From: https://expeditionsonline.com/blog/whales-arctic

Common TSCA Misconceptions

- **PCBs are not volatile**
  - Although PCBs have a low vapor pressure, they do volatilize into the air
  - May be found in secondary sinks (e.g., foam, drop ceiling panels and paint)
  - If you have interior PCB-contaminated building products with high PCB concentrations, indoor air samples should be collected
- **PCBs are not found in water**
  - PCBs prefer to attach to soil but may be found dissolved in water, especially if the PCBs are mobilized by solvents
  - Water samples collected in a PCB contaminated area should be sampled using both a filter and unfiltered sample
  - Turbidity in water samples should be no more than 10 NTU

Common TSCA Misconceptions

PCBs are not still being produced

- May be by-products of production of dyes and pigments (primarily)
- Also have been found in tubing used for sampling

PCB USES – FLUORESCENT LIGHT BALLASTS (FLBs)

PCB USES – TRANSFORMERS AND CAPACITORS

Transformers

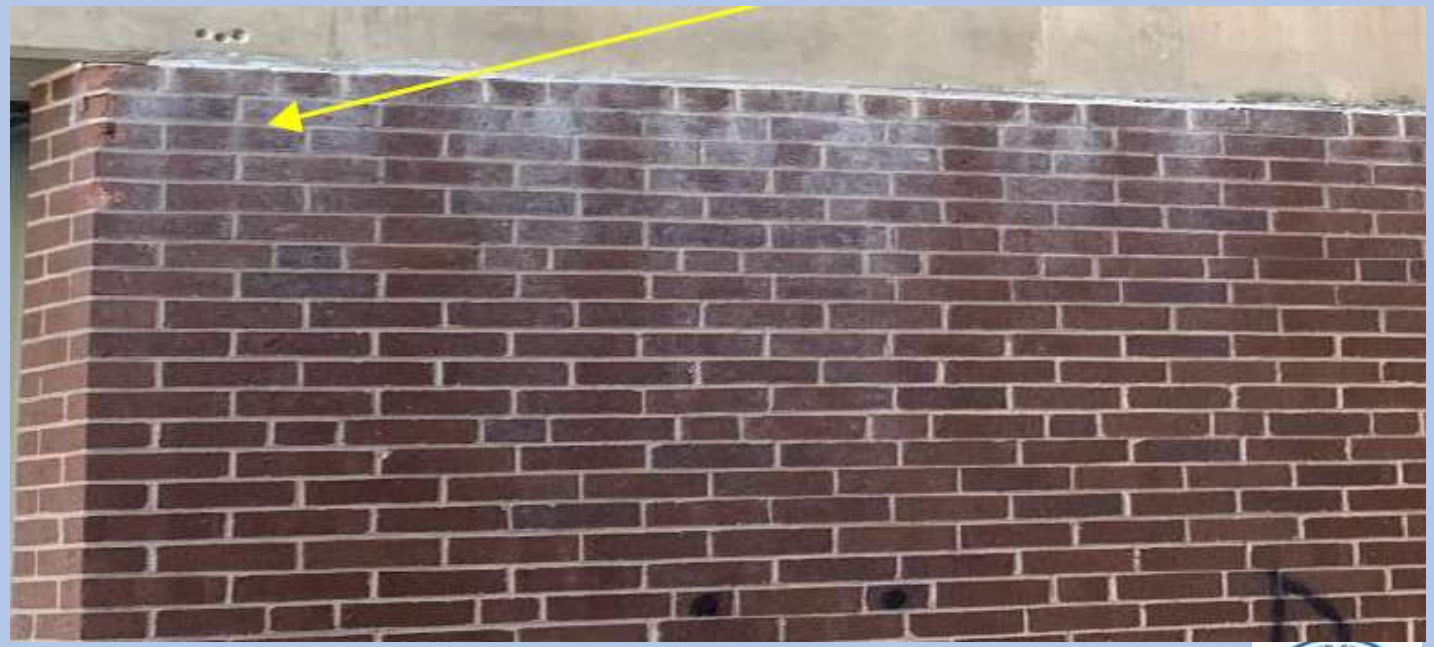
Capacitors

PCB USES – SMALL CAPACITORS

Clock capacitors

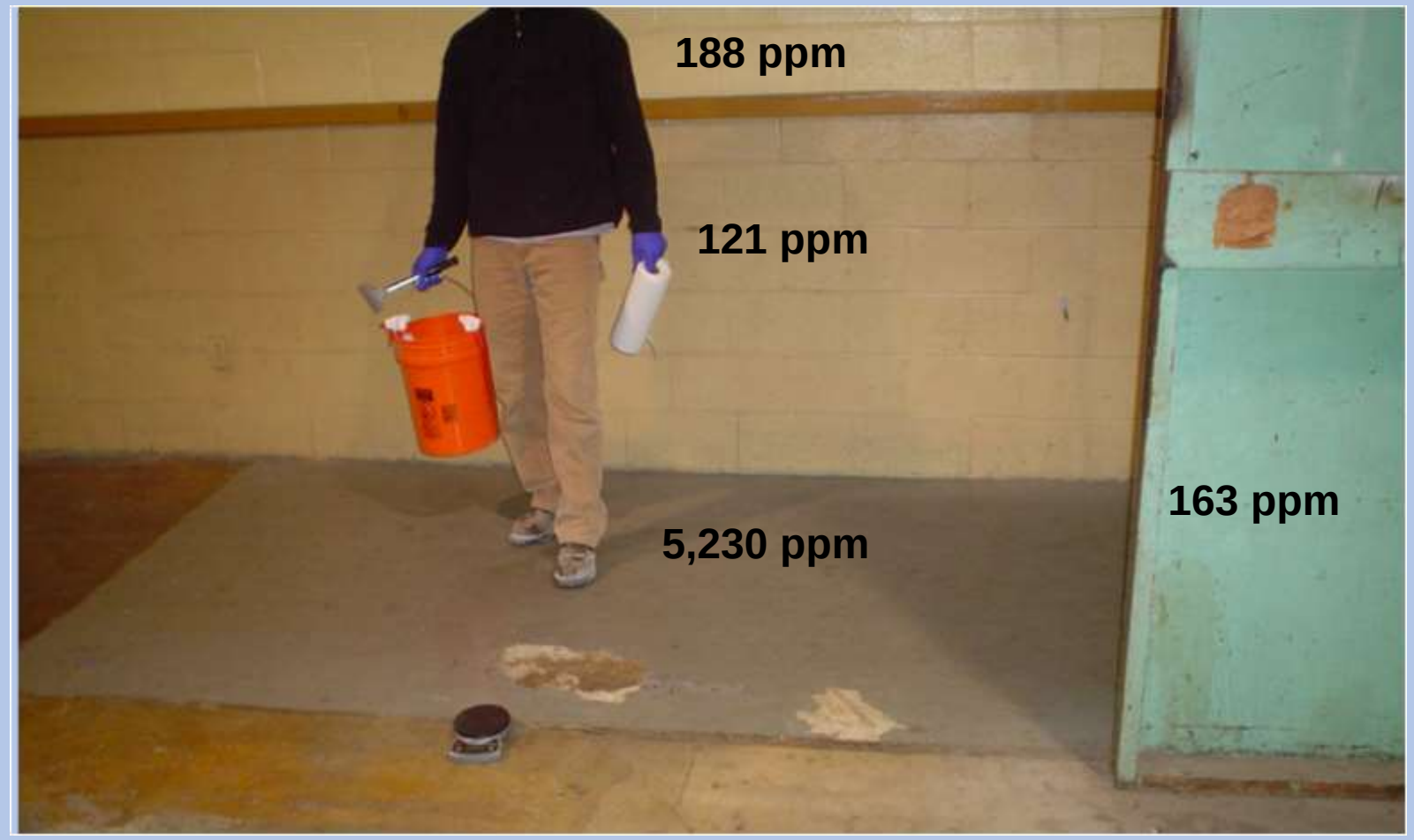
Uni-vents

PCB USES – CAULKING



PCB USES – SPRAYED ON FIREPROOFING

PCB USES – PCB-contaminated paint



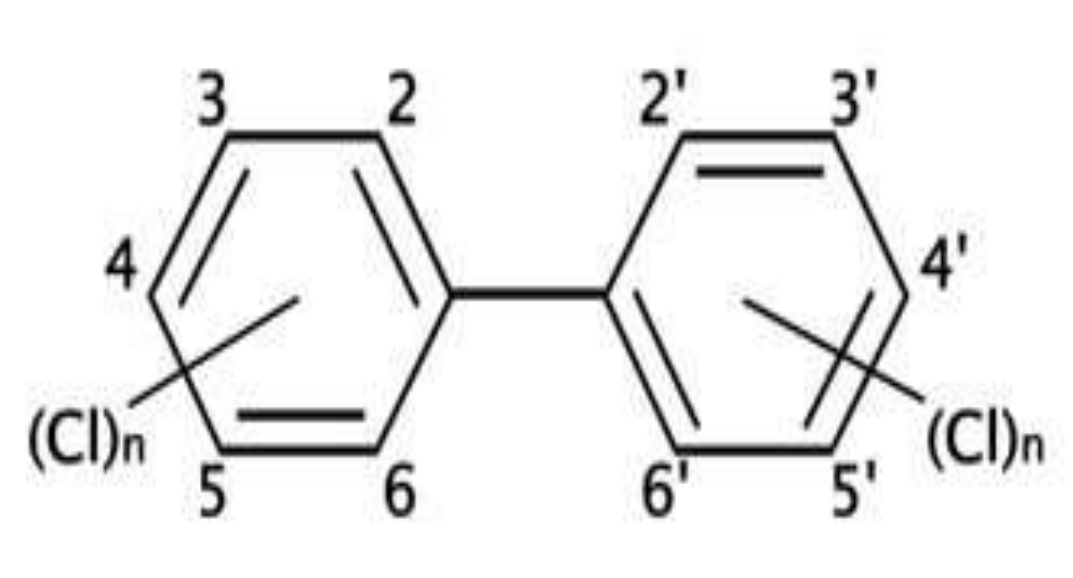
PCB Laws, Regulations and Definitions

Law & Regulations

- TSCA of 1976 - Section 6(e)
- 1998 Amendments - "The Mega-Rule"
- 40 CFR Part 761
  - ❖ Disposal
  - ❖ Storage
  - ❖ Marking

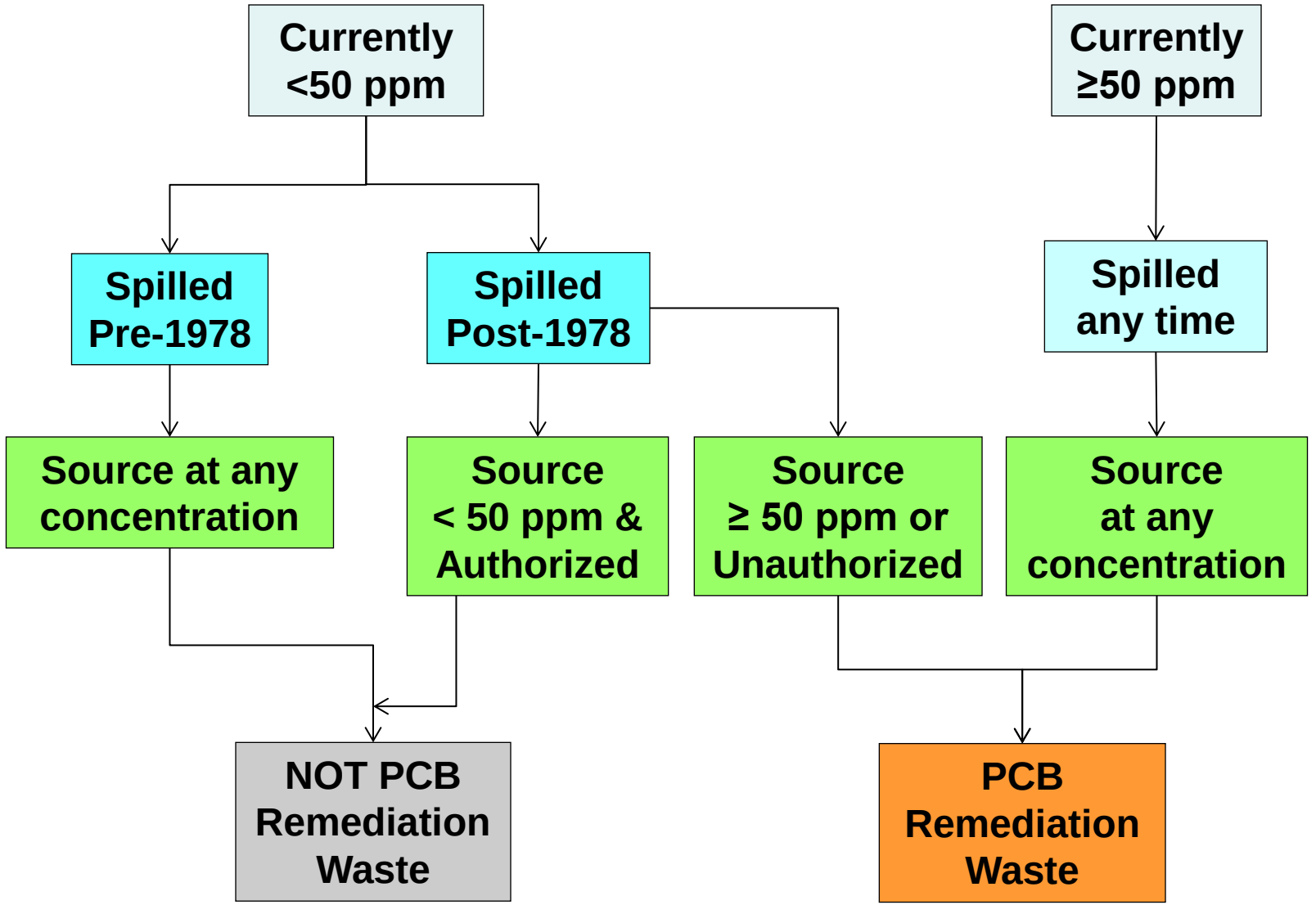
Definitions of different types of waste: 40 CFR § 761.3

- PCB Remediation Waste
- PCB Bulk Product Waste
- Excluded PCB Product



Definition of “PCB Remediation Waste”

*** generalized depiction, see 40 CFR 761.3 for full detail*



PCB Remediation Waste Cleanup and Disposal Options

NOT PCB Remediation Waste

- No cleanup or disposal obligations
- No interaction with EPA
- Any landfill – state regulation

PCB Remediation Waste*

761.61(a)
Self Implementing Option

- Must notify EPA
- Sampling requirements are prescriptive
- Can send < 50 ppm to municipal landfill

761.61(b)
Performance Based Disposal Option

- Notification required 30 days post work
- All PCB Remediation Waste disposed at TSCA/RCRA facility
- Must remove all PCB waste > 1 ppm

761.61(c)
Risk Based Option

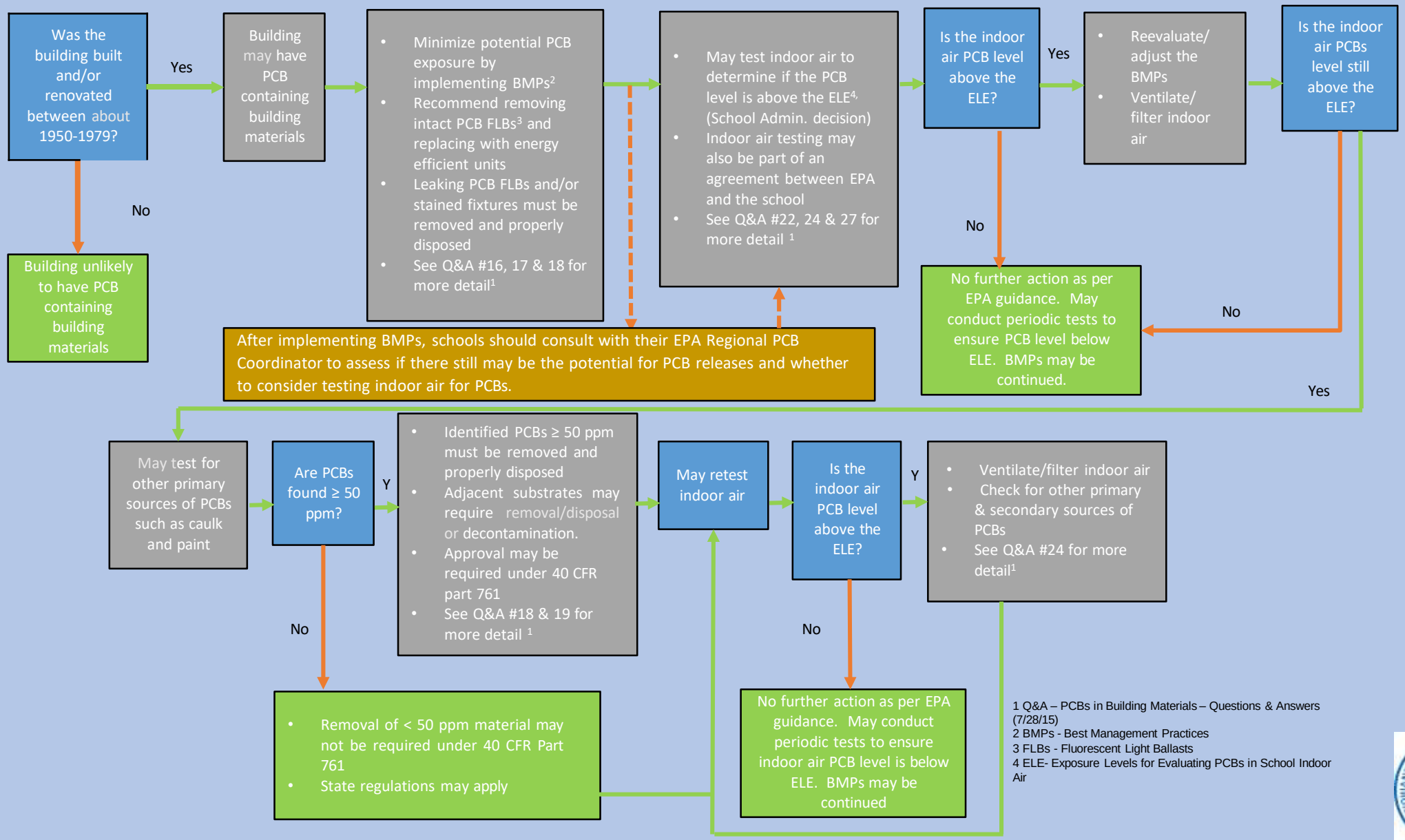
- Requires EPA approval
- Any cleanup and/or disposal plan may be submitted
- Depends on EPA finding of no unreasonable risk of injury to health or env

PCB Bulk Product Waste

"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 ≥ 50 ppm PCBs"

An Example of How to Manage Polychlorinated Biphenyl (PCB)-Containing Materials in School Buildings

November 15 2018



1 Q&A – PCBs in Building Materials – Questions & Answers (7/28/15)
2 BMPs - Best Management Practices
3 FLBs - Fluorescent Light Ballasts
4 ELE- Exposure Levels for Evaluating PCBs in School Indoor Air

PCB manufactured Products

- Examples: caulk, applied dried paints, varnishes, other similar coatings or sealants, Galbestos

- Substrates (if disposal pursuant to October 24, 2012 PCB Bulk Product Waste Reinterpretation)

- Disposal under § 761.62 without Approval unless is risk-based

PCB
Waste Classifications

- ***PCB Bulk Product Waste*** **§ 761.62**
  Caulk, paint, mastic, laminates, adhesives

- **PCB Remediation Waste § 761.61**
  Concrete, masonry, brick, window frames, exterior soils, furniture

Demolition or Renovation
PCB bulk product waste
and Reinterpretation Impact

-

Excluded PCB Product

Applies to PCB-containing manufactured products only

- **Must meet all criteria under 40 CFR § 761.3**
  - ✓ Concentration (< 50 ppm)
  - ✓ Sold/distributed in commerce prior to 1984
  - ✓Original to the building
  - ✓ No dilution

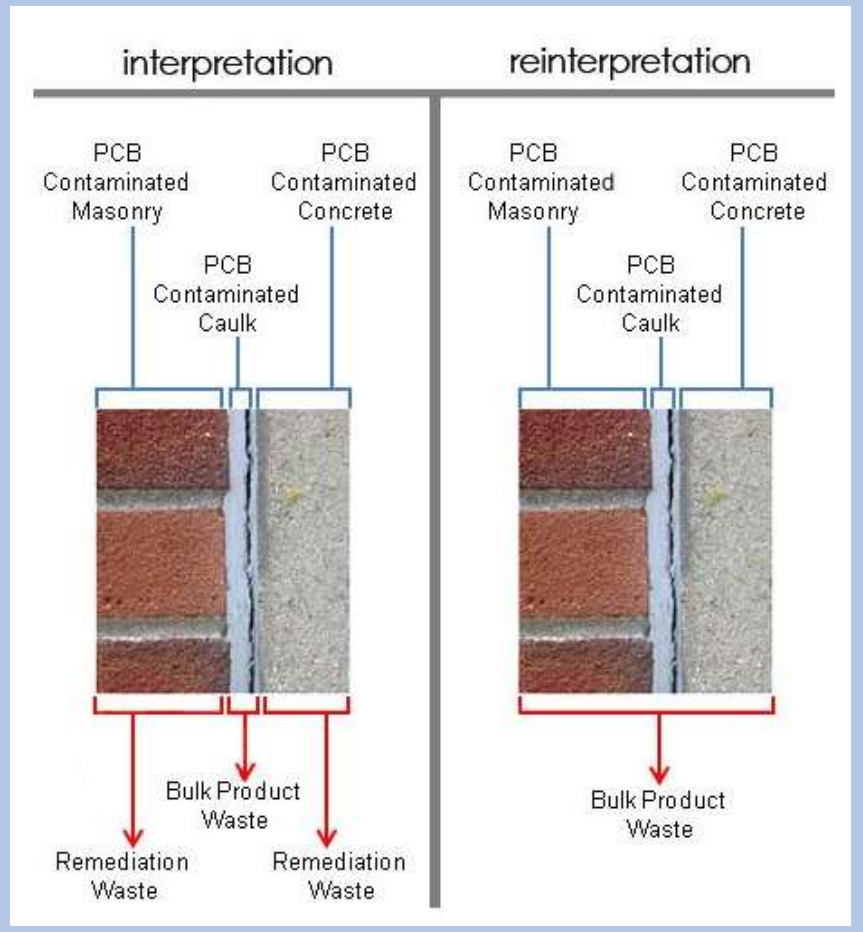
- May be left in place without further restrictions/requirements unless State requires removal

Disposal Options-Liquids

- Disposal by incineration - 40 CFR 761.60
- Decontamination – 40 CFR 761.79(b)
  - ≤ 0.5 ppb (ug/L)- unrestricted use
  - ≤ 3 ppb (ug/L) - discharge to POTW or navigable waters

Disposal Options-Solids

- *PCB remediation waste*
  - §761.61(a)(5)(i)(B)(*2*)(*iii*) - ≥ 50 ppm PCBs
  - §761.61(a)(5)(i)(B)(*2*)(*ii*) - < 50 ppm PCBs
- *PCB bulk product waste*
  - §761.62(a) - ≥ 50 ppm PCBs
  - §761.62(b) - < 50 ppm PCBs
- Oct 24, 2012 Reinterpretation



Other Common TSCA Misconceptions

- **PCB Waste with < 50 ppm PCBs isn't regulated under TSCA**
  - *PCB Remediation Waste* may be regulated if:
    - Results from > 50 ppm PCB spill
    - Not the result of a pre-78 PCB spill

- **PCB-containing building products with < 50 ppm are *Excluded PCB Products***
  - To be *Excluded PCB Product* the product must also have been:
    - Legally manufactured, processed, distributed in commerce, or used before October 1, 1984
    - Not the result of dilution or leaks and spills of PCBs > 50 ppm
    - Adequately sampled to determine that truly < 50 ppm concentration

Another Common TSCA Misconception

- **3 samples is sufficient for determining if PCB-contamination present**

  - PCB contamination is heterogenous in buildings and stockpiles
  - Use the size of a room/pile to estimate a quantity of sample
  - Divide locations for sampling into use (window vs door), color (blue vs green), visual (soft and pliable or hard and cracked), elevation of the building (north vs south side)

https://www.epa.gov/system/files/documents/2023-09/Technical_Guidance_Determining_Presence_Manufactured_PCB_Products_Buildings_Structures.pdf

Recent Updates to 761.61– New Rule Effective Date: February 26, 2024

761.61(b) Requirements (Applicability)

- Applicability- may **not** be used to clean up:
  - Surface or ground water
  - Sediments in maritime and freshwater ecosystems
  - Sewers or sewage treatment systems
  - Private or public drinking water sources or distribution systems
  - Grazing or agricultural lands
  - Vegetable gardens
  - Sites where cleanup site contains or is proposed to be redeveloped to contain:

    residential dwellings, hospitals, schools, nursing homes, parks, day care centers, endangered species habitat, estuaries, wetlands, national parks or wildlife refuges, commercial/sport fisheries,
  - PCB contamination in the 100-year floodplain

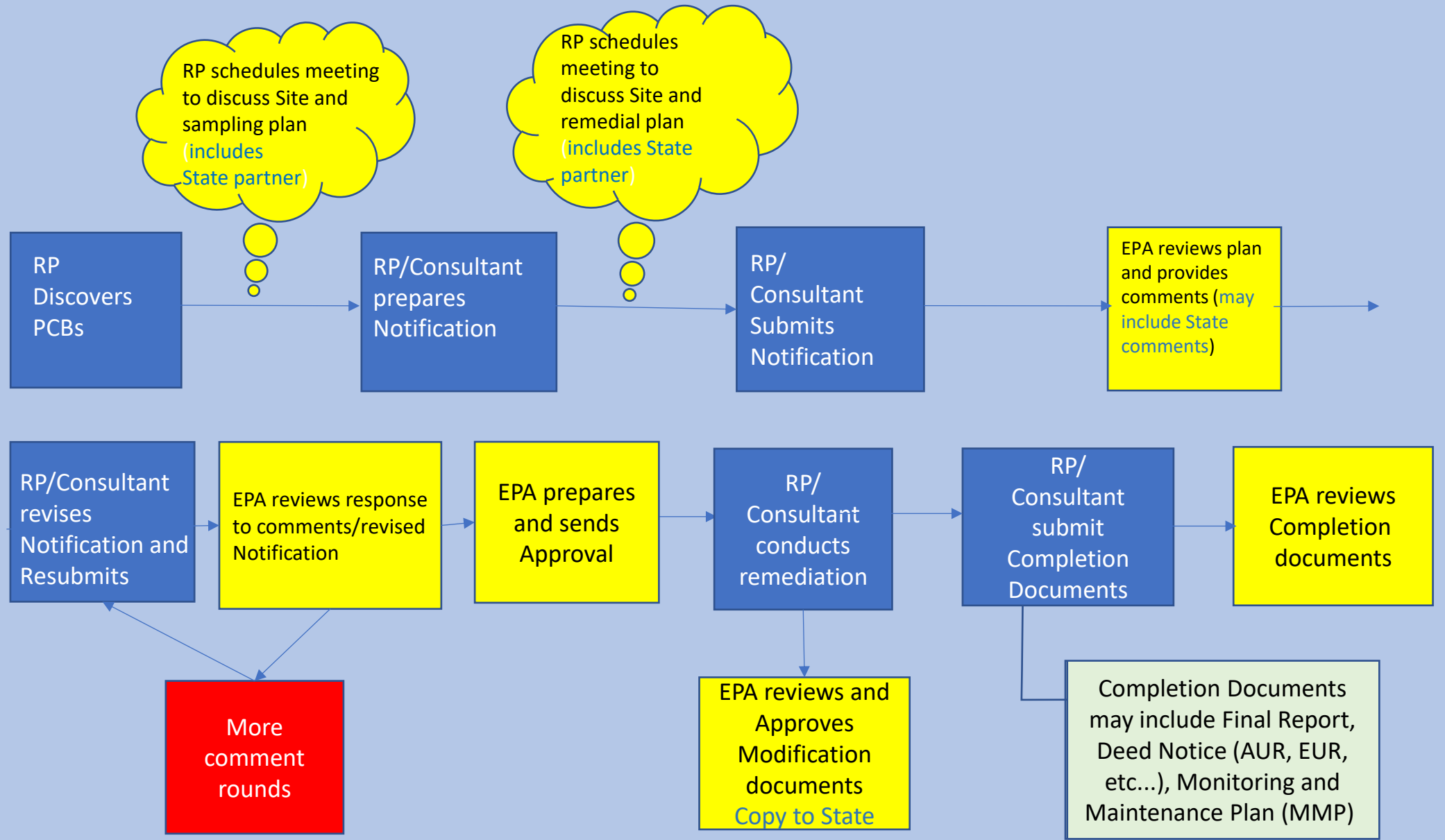
761.61(b) Requirements

- Cleanup Levels
  - PCB remediation waste: < 1 ppm
  - Liquids-761.79(b)(1) and 761.79(b)(2)
  - Non-porous surfaces –761.79(b)(3)
- Verification Sampling-Subpart O, Subpart P
- Cleanup Completion Notification- Within 30 days of sending final shipment of waste offsite for disposal (761.61(b)(v))

Extraction Methods

- Soil Extraction Methods
  - Automated Soxhlet (Method 3541)
  - Pressurized Fluid (Method 3545A)
  - Microwave (Method 3546)
- Aqueous Extraction Methods
  - Sep Funnel Liquid-Liquid (Method 3510C)
  - Continuous Liquid-Liquid (Method 3520A)
  - Solid-Phase (Method 3535A)
- Ultrasound only for wipe samples
- Determinative Methods- 8082A and 608.3 (water)

EPA R1's Role in PCB Cleanups



Questions??

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