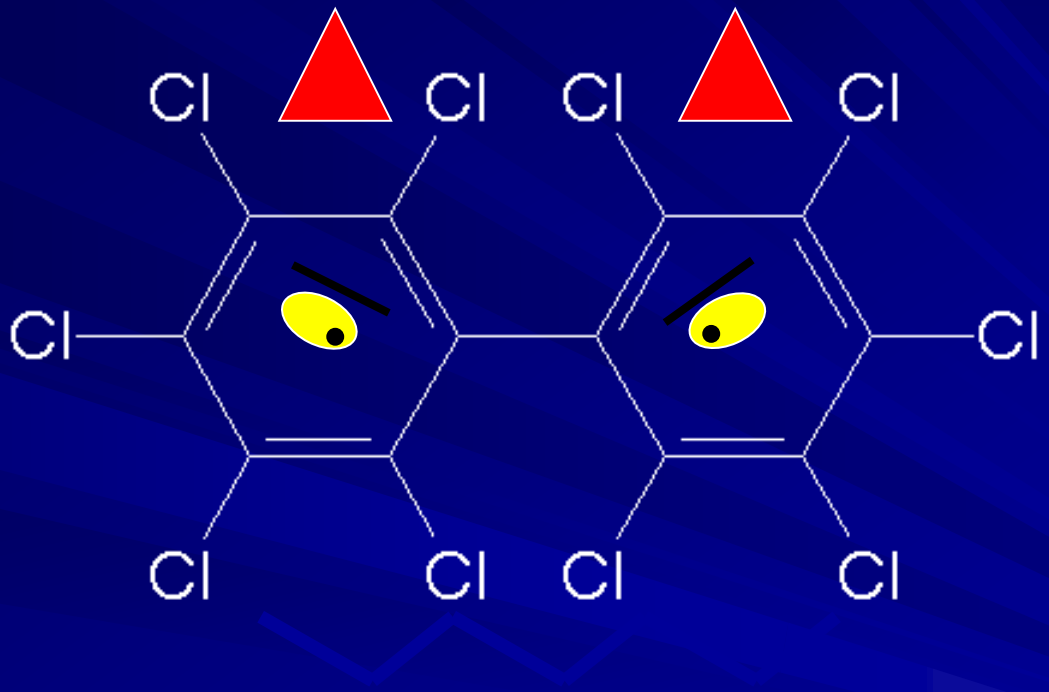
PCBs and TSCA

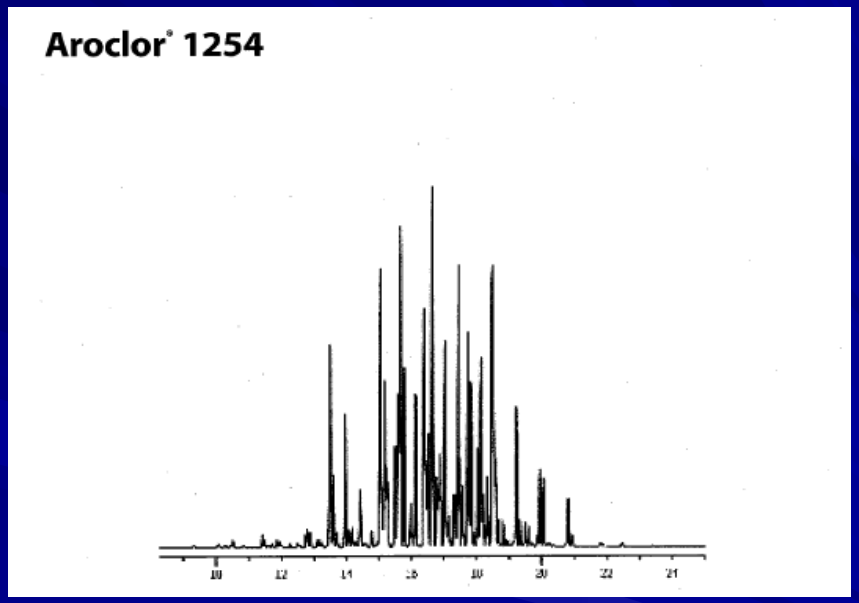


- Kim Tisa, PCB Coordinator
- US EPA Region 1
- June 16, 2016

Formulating PCBs into Aroclors

(1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, 1268)

- Monsanto was only US producer - 1.4 billion lbs
- Only about 130 of the 209 congeners were used in commercial formulations
- >50 different congeners were used in an Aroclor mixture
- Range from oily liquids to waxy solids at room temperature
- Last two digit = % Chlorine by mass



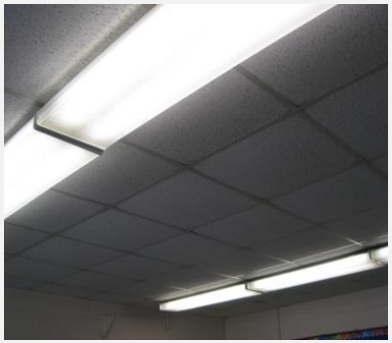
Uses of Aroclor by Type

Current Uses (since 1970)	1221	1232	1242	1248	1254	1260	1268
Capacitors	X		X		X		
Transformers			X			X	
Heat transfer			X				
Hydraulic/lubricants • Hydraulic fluids		X	X	X	X	X	
• Vacuum pumps				X	X		
• Gas-transmission turbines	X		X				
Plasticizers • Rubbers	X	X	X	X	X		X
• Synthetic resins				X	X	X	X
• Carbonless paper	X		X				
Miscellaneous • Adhesives	X	X	X	X	X		X
• Wax extenders			X		X		
• Dedusting agents					X		
• Inks					X	X	
• Cutting oils					X		
• Pesticide extenders					X		
• Sealants and caulking compounds					X		

PCB USES – CAULKS & LIGHT BALLASTS

U.S. Production of Aroclors as a plasticizer ingredient (mostly Aroclor 1254)

- 1958 - 4 million pounds
- 1969 - 19 million pounds
- 1971 - 0 pounds produced in U.S. (imports?)



Fluorescent light ballast capacitors (mostly Aroclor 1242)

- Prior to 1977 - Many (most?) ballasts contain PCBs
- 1977 – 1978 - Some new ballasts contain PCBs
- After 1978 - No new ballasts manufactured w/ PCBs
- Some ballasts remain in place; some have leaked/failed

In fluorescent light ballasts

Regulation of PCBs

40 CFR 761 - Toxic Substances Control Act

Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

- PCBs are regulated by the U.S. EPA under the Toxic Substances Control Act
- A few key points:
  - Regulations prohibit the use of PCBs at greater than 50 ppm in caulk and other non-liquid products, including continued use of products already in place
  - When identified, appropriate management and disposal of materials containing PCBs is required under TSCA regulations
  - PCB regulations may govern owners, operators, and/or persons conducting cleanup of PCB-contaminated property where the PCB contamination exceeds allowable concentrations under the regulations
  - TSCA authority is not delegated to the states; therefore both TSCA and state regulations will apply

ISSUES

40 CFR 761 - Toxic Substances Control Act

Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions

- Manufactured products containing PCBs have been found in many buildings and structures
- Caulk typically contains PCBs at very high levels - %
- The PCBs in the caulk (or other non-liquid product) can migrate to surrounding materials (air, soil, masonry).
- Typical renovation procedures can increase exposures to workers and building residents, including children

EPA Recommended Public Health Levels for School Indoor Air

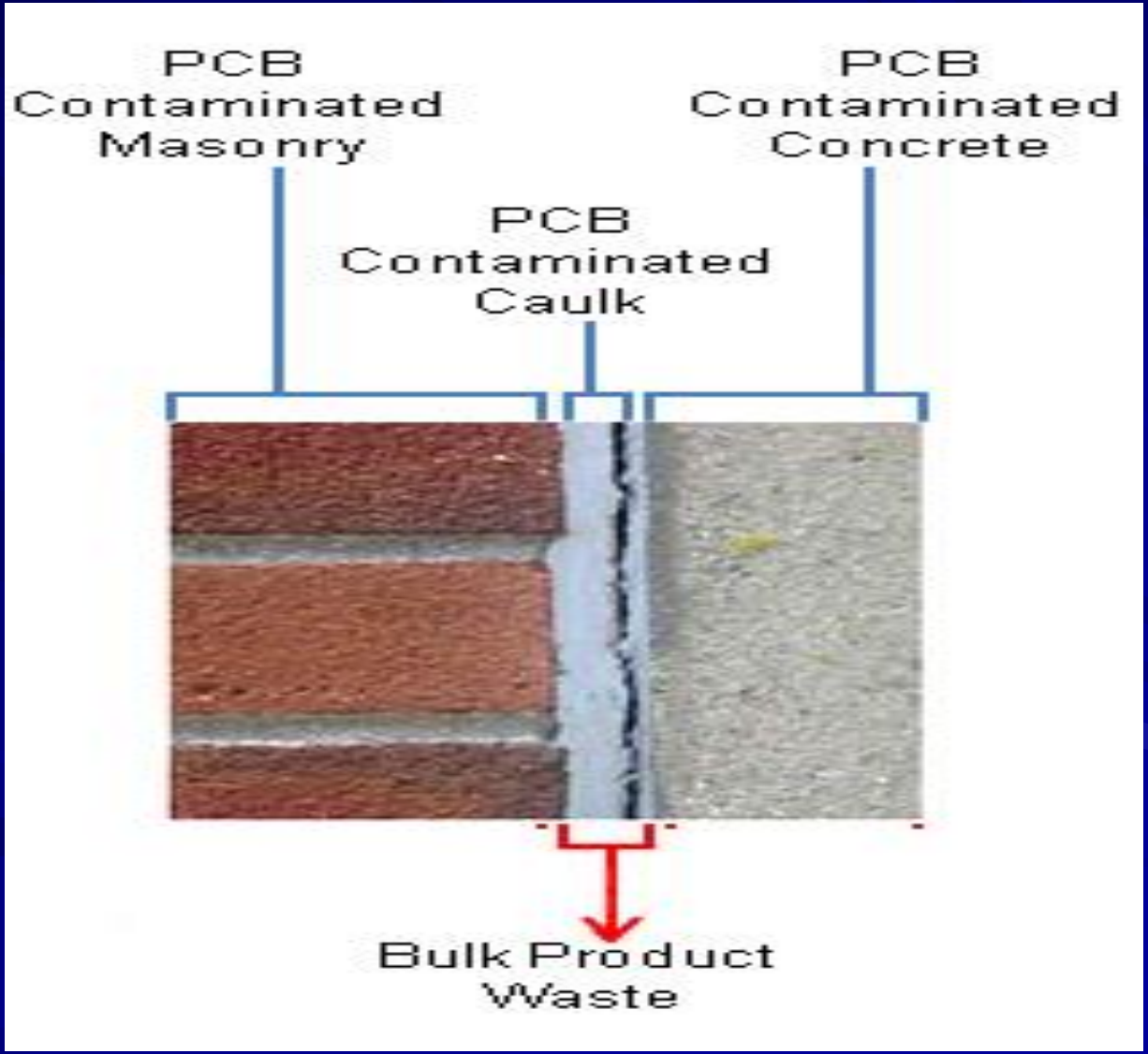
Age group	Exposure Levels (ng/m^3)
Daycare/Pre-School: 1 to < 6 yr	**100 to 200**
Elementary: 6 to < 12 yr	**300**
Middle School: 12 to < 15 yr	**500**
High School: 15 to < 19 yr	**600**
Adult Staff: 19+ yr	**500**

- **Exposure levels were derived to serve as health protective values intended for evaluation purposes**
- **Exposure levels should not be interpreted nor applied as "bright line" or "not-to-exceed" criteria**
- **Source: PCBs in Building Materials – Questions and Answers, July 28, 2015 (Q#25)**

Management in Place

- Not acceptable for manufactured product and must be removed/disposed as *PCB bulk product waste* (§ 761.62)
- May be acceptable for surrounding materials (§ 761.61)
- *Possible* short-term interim measure
  - Consultation with EPA
  - Sampling may be required

2012 Bulk Product Waste Reinterpretation



Non-Liquid PCB Region 1 Sites

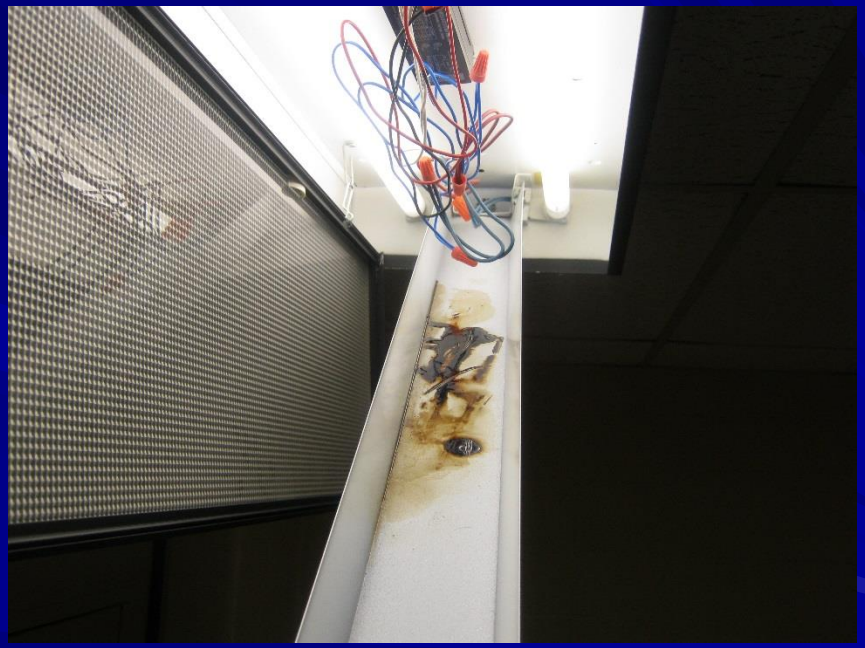
- Universities, Schools and Daycare Centers
- Pools
- Federal Government Buildings
- State/Local Govt. Buildings
- Water Systems
- Commercial Buildings
- BFs
- Nuclear Power Plants

PCBs in Schools

Fluorescent Lights

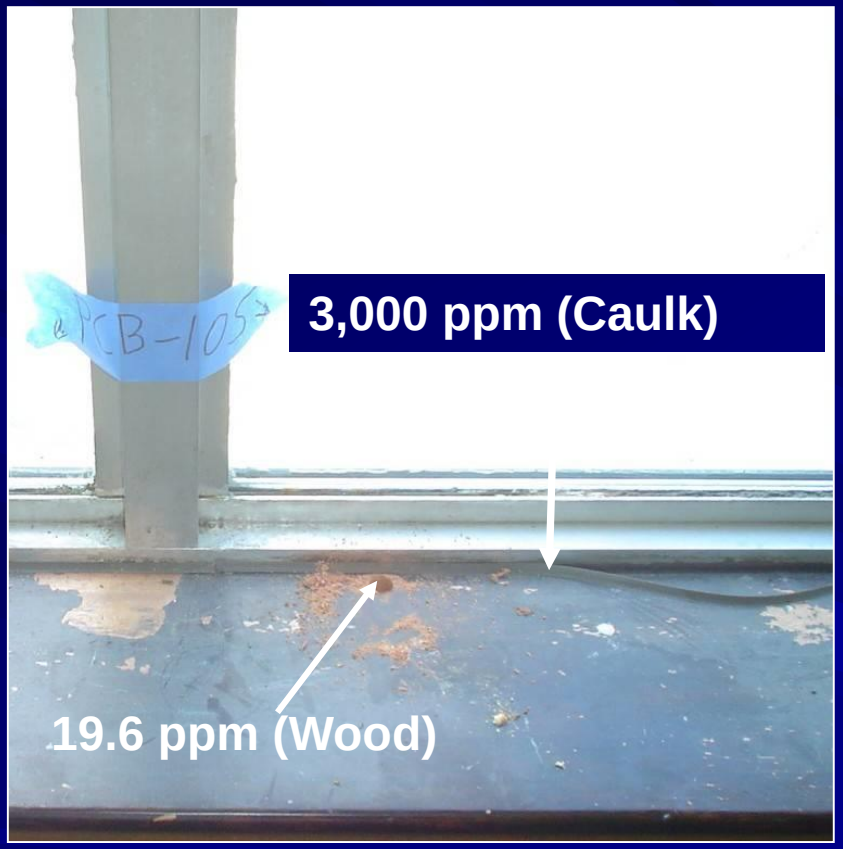
Failing Ballast

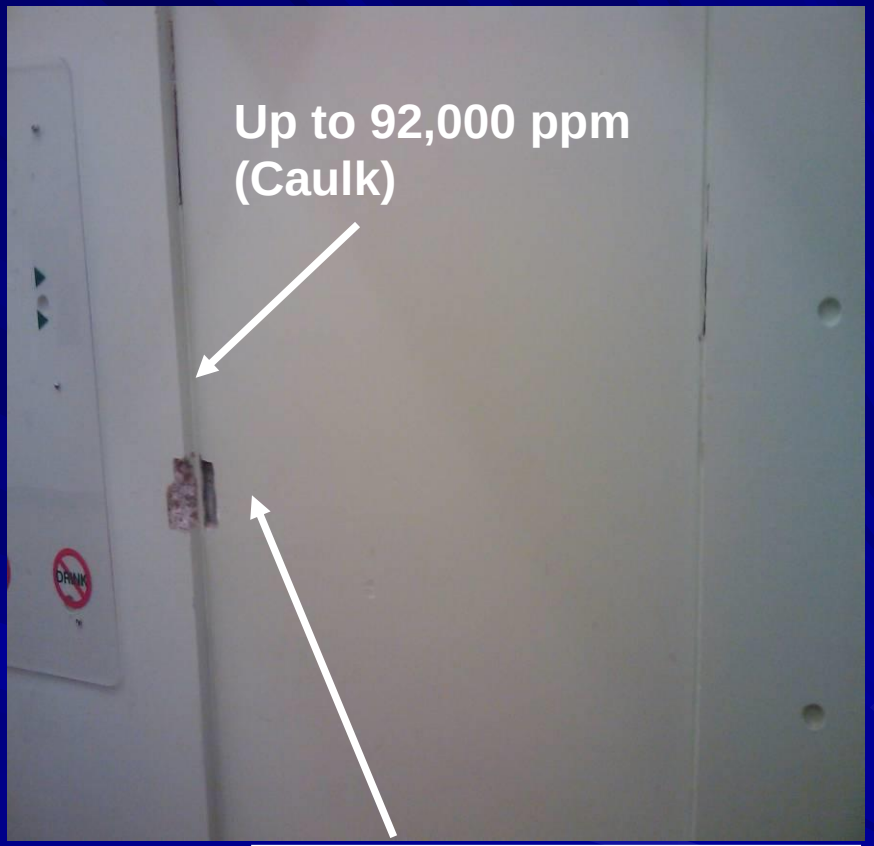
PCB Oil Residue




CAULK AROUND WINDOWS
16,000 - 40,000 PPM
CAULK BETWEEN
METAL LINTEL &
METAL WINDOW
FRAME
8.0 - 48 PPM
CAULK BETWEEN
METAL LINTEL &
WOOD SOFFIT
4.1 - 45 PPM
GLAZING
COMPOUND
1,700 PPM

PCBs in Caulking





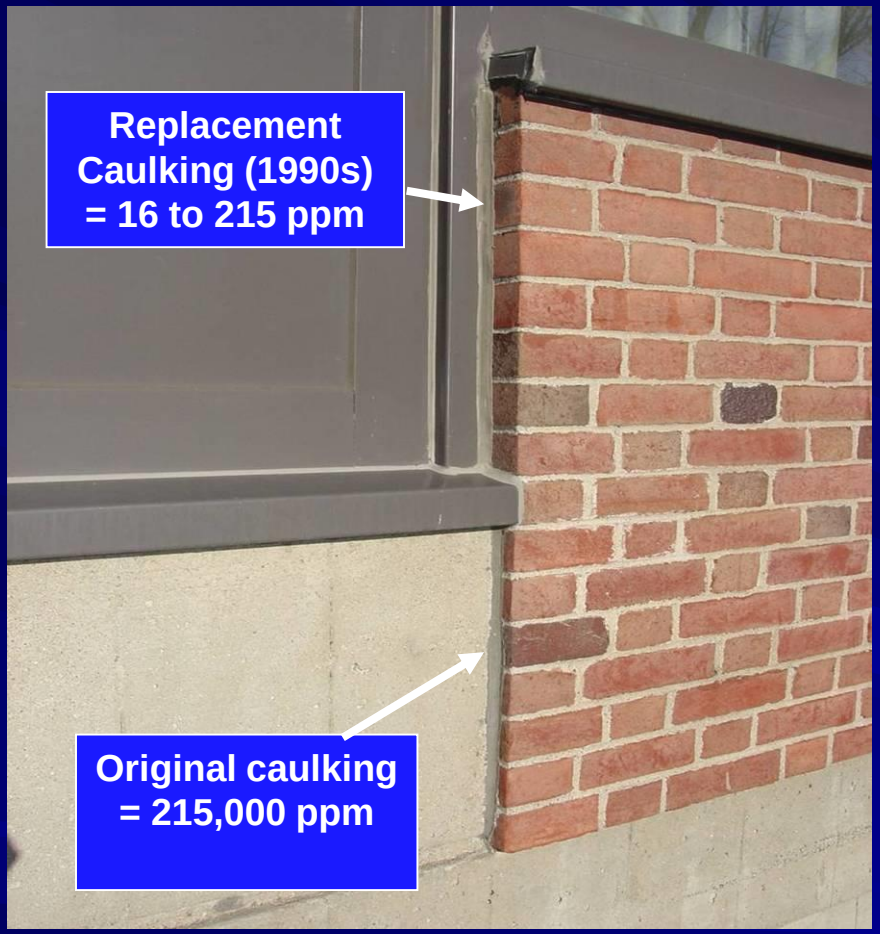
PCBs in Plaster

1 in. away = 34 – 44 ppm

4-5 in. away = 4.04 ppm

12-13 in. away = 4.1 ppm

PCBs in Caulking



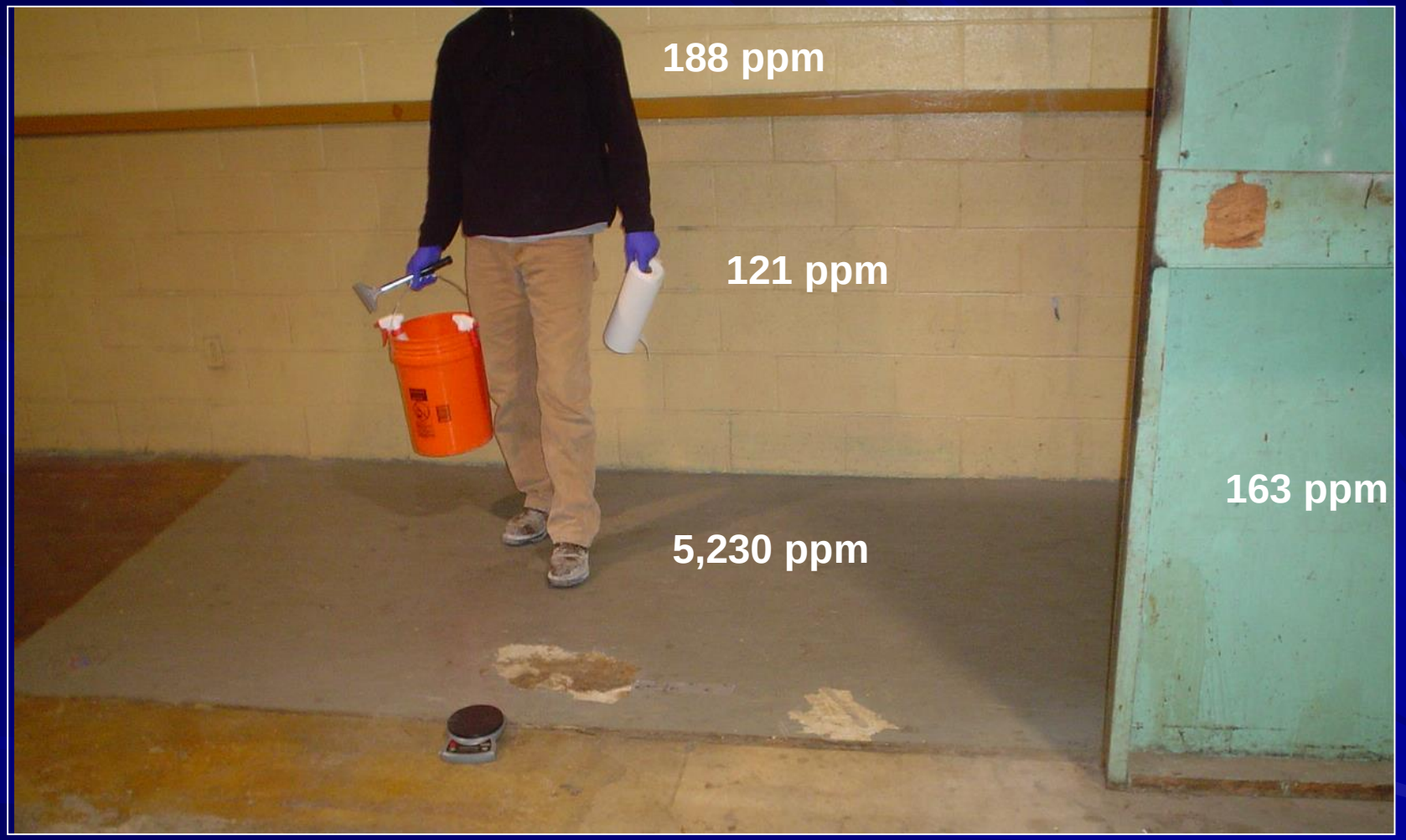
SITE A

SITE B

Sprayed on fireproofing

Mastics and Paints

PCBs in Paint



Site data – Different color paint samples

Waterproofing Materials


ASPHALTIC FELT & MASTIC
UNDER WOOD GYM FLOOR
9.6 - 10.9 PPM

FURNITURE SORPTION


ADLER

Last Thoughts

All schools/buildings are different, and no one-size-fits-all approach for assessing and managing PCBs has been found

Our knowledge about PCBs is still evolving

Building assessment and remediation can be costly – effective planning is important

Effective communication with stakeholders is important

Keep aware of future changes in guidelines, best practices, and regulations

Contacts and PCB Info

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  tisa.kimberly@epa.gov

- Caulk Hotline: 888-835-5372

- *https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs*
- *https://www.epa.gov/pcbs/polychlorinated-biphenyls-pcbs-building-materials*

THANK YOU