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Legacy Hazardous Materials in Active Facilities

John C. Murphy, CCM, CHMM
Marc Hudock, LSRP

About Us:

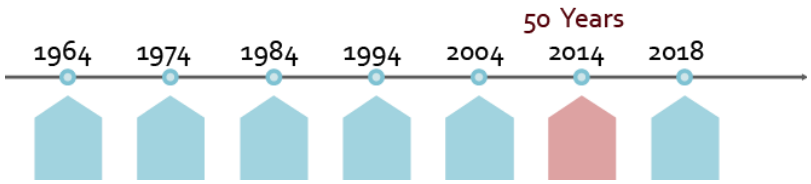
John Murphy CCM, CHMM:

Certified Construction Manager and Certified Hazardous Materials Manager with 30 years experience with environmental building, heavy construction, demolition and facility closures.

Marc Hudock, LSRP:

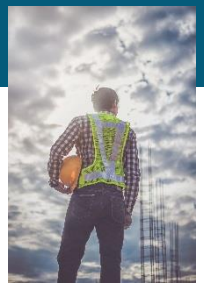
Licensed Site Remediation Professional (LSRP) with 22 years experience. Mr. Hudock has developed a niche specialization with PCBs in coatings and other building materials. Mr. Hudock is active in New Jersey chapter of IFMA and the Chemistry Council of NJ.

GZA



54 Years

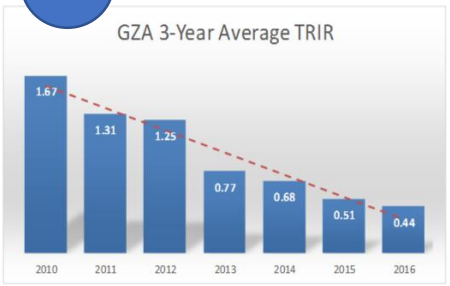
5 Core Services



Health & Safety Matters

National Safety Council

TRIR Total Recordable Incident Rate



Well below Industry's National Average

4 Consecutive National Safety Council "Perfect Record" Award

"A" or "Green" Status

ISNetworld

Avetta

BROWZ
keeping compliance in check

Contractor EH&S Registry/Prequalification System

350 Prequalified Contractors

TOP CLIENTS

nationalgrid
THE POWER OF ACTION

EVERSOURCE ENERGY

Wynn MA, LLC

South Jersey Gas

Ford

PQ Corporation

IHI/Kiewit Cove Point

Raytheon

KAMAN

Alcoa

FIAT CHRYSLER FCA FIAT CHRYSLER AUTOMOBILES

Allied Waste Niagara Falls Landfill

WYMAN GORDON
A PCC Company

THE PORT AUTHORITY OF NY & NJ

NYC Environmental Protection

PB Americas Inc.

AREVA

THE SALVATION ARMY

Todays Presentation:

- What are Legacy Hazardous Materials?
- Why Identify Them?
- What are they?
- Where are they Found?
- How to Assess?
- Data Management

We Comply with Federal EPCRA Requirements - Isn't that enough?

- Emergency Planning and Community Right to Know Act
- Annual Tier I, Tier II or TRI Reporting
- Provides emergency planning agencies and your community information on the hazardous materials you store or use at your facility.
- Limited to certain quantities hazardous materials stored, manufactured or processed.
- Hazardous materials are identified by the presence of an SDS (formerly known as MSDS) as required by OSHA for hazardous materials
- **Doesn't Address Legacy Hazardous Materials that may be present within a facility.**

What are Legacy Hazardous Materials?

Materials considered part of the facility:

- Asbestos
- Lead Paint
- Polychlorinated Biphenyls (PCBs)
- Universal or other Hazardous Building Materials
- Other Stored Materials (Coolants, refrigerants, greases, oils, etc.)

Why Identify Legacy Hazardous Materials?

- Planned Construction or Renovation
- Due Diligence
- Worker Exposure
- Contractor Exposure
- Regulatory Compliance
- Materials Management Issues
- Long Term Liabilities
- Client Specific Requirement (EHS Assessment Protocol)

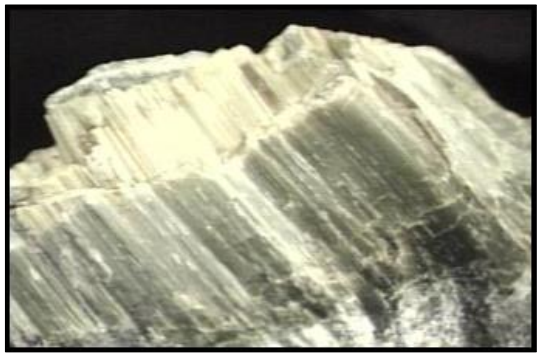



EXIT
EXIT
EXIT
EXIT


DANGER
CONTAINS ASBESTOS FIBRES
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

What is Asbestos?

- A naturally occurring crystalline substance – a mineral – having many industrially useful properties.
- It forms long fibers that are flexible (some can be woven like cotton into fabric).
- Fireproof, resists chemical attack, and has high tensile strength.



Why is Asbestos a Concern Today?

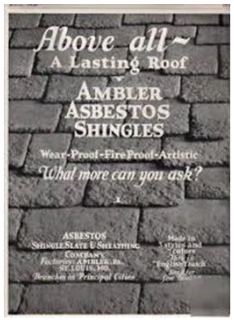
- Widely used in building products through the 1970s.
- Several asbestos products banned during the mid to late 1970s
- Other asbestos products have been identified in buildings constructed during the 1980s and 1990s
- Widespread use of asbestos building products makes suspect any building constructed prior to 1980.
- The U.S. Bureau of Mines estimates that there are more than 2000 discrete uses of asbestos.

Types of Asbestos Containing Materials

- **Surfacing Materials**
  Paint (textured and non-textured), Drywall with Joint Compound, Plaster Systems, Acoustical Materials, Fireproofing on Structural Members

- **Thermal System Insulation (TSI)**
  Air-Cell Pipe Insulation, Cementitious Fittings, Boiler and Expansion Tank Insulation, Ducts and Other Structural Components to Prevent Heat Loss or Gain

- **Miscellaneous Materials**



Asbestos Exposure Scenarios

- The renovation and demolition of buildings if ACMs are not identified prior to undertaking construction activities
- Performing routine building maintenance and repair (housekeeping) activities to building materials that contain asbestos

Who Regulates Asbestos in Buildings?

U.S. EPA, Title 40 CFR Part 61 "NESHAP"

- Addresses standards during renovation and demolition activities
- Includes regulatory notifications, emission control procedures, and waste disposal, and establishes the requirement for conducting an Asbestos Survey.
- Requires the Owner/Operator of a renovation/ demolition project to "thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos" prior to the commencement of the demolition or renovation
- Many States have issued stricter regulations including training and licensing requirements

Types of Asbestos Surveys

- Pre-Acquisition/Initial/Baseline
- Preconstruction/Renovation/Demolition
- OSHA Compliance

Where We Look….

Expansion Tanks

Fireproofing

Floor
Tile/Mastic

Transite

Roofing

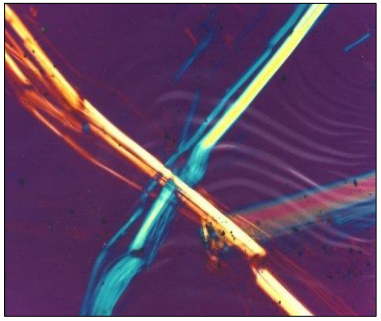
Steam Union

Steam Elbow

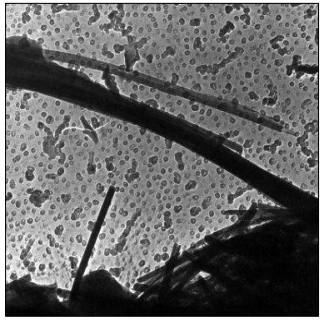
Lab Top

Laboratory Confirmation & Reporting

- Accredited Laboratory Using Polarized Light Microscopy with Dispersion Staining (PLM/DS) and Visual Estimation of Asbestos Percentages;
- Transmission Electron Microscopy (TEM); or
- If Suspect ACM is Not Sampled, then it is **Presumed ACM (PACM)**



PLM/DS



TEM

PACM

Dealing with Asbestos in Facilities

Asbestos Operation and Maintenance (O&M) Program

- Identify ACM
- Maintain ACM in Good Condition
- Ensure Proper Cleanup of Asbestos Fibers Previously Released
- Prevent Further Releases of Asbestos Fibers
- Monitor the Condition of ACM

Three O&M Program Project Types

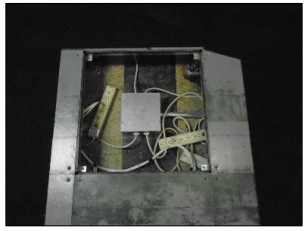
- Custodial - No Direct Contact with ACM
- Maintenance - Accidental Disturbance of ACM
- Maintenance - Short-Duration Disturbance

Asbestos Identification in Active Facilities

- Most states Requires Inspection by a Competent Person Prior to Renovation or Demolition.

- 40CFR 61 ….”thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos” prior to the commencement of the demolition or renovation

- OSHA, Title 29 CFR Part 1910.1001 “*General Industry Standard”* Be Aware: Materials that contain less than 1% asbestos can NOT be ignored?



Lead

What is Lead?

- A heavy metal with many useful industrial properties
- Used in various paint products, piping, solder, ceramic glazes, electrical equipment, radiation protection and roof flashing, etc.

Why is Lead a Concern Today?

Why is Lead a Concern Today?

Exposure hazards to lead:

- The renovation and demolition of buildings containing lead coated building components if not identified prior to undertaking construction activities

- The deterioration of lead coated building components in residential, day-care, and other structures where small children reside or spend time

OSHA level Inspection

- Demolition of Structures
- Collection of Paint Chips
- Is lead Present?

Comprehensive Inspection

- Inspection by Master Lead Inspector to identify lead painted building components
- Where is the lead?

Polychlorinated Biphenyls (PCB's)

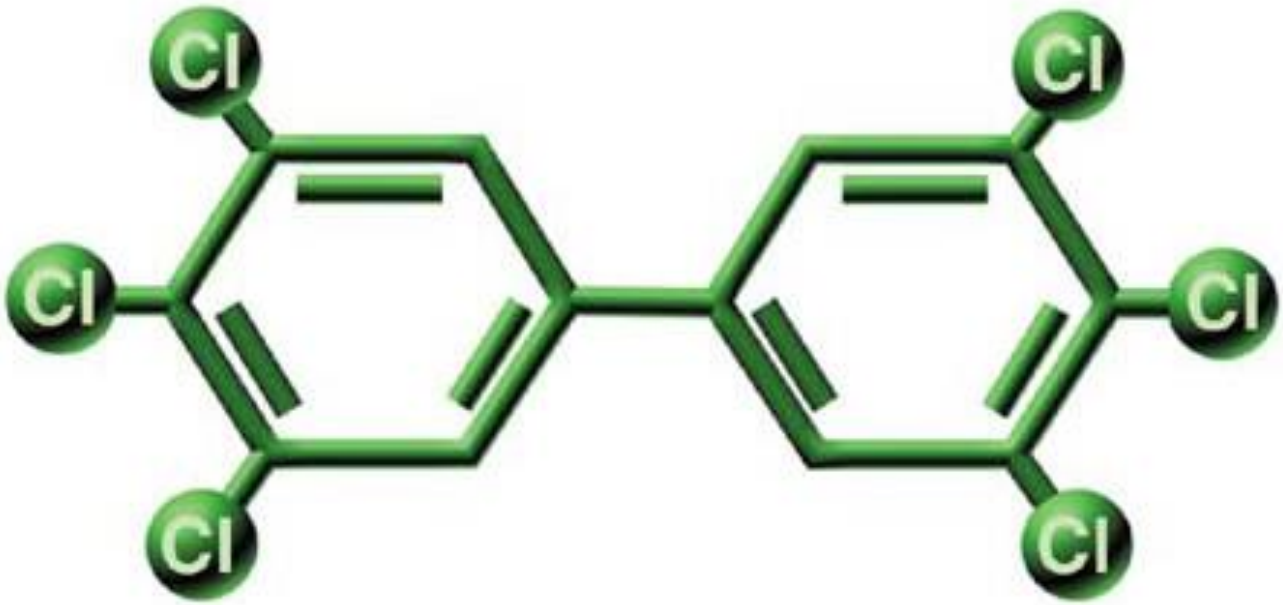
Polychlorinated biphenyls (PCBs)

- **Odorless, colorless, oily**
- Made by Swan Chemical Company

  ---- > Monsanto

~ 1927 to ~1979

Polychlorinated biphenyls (PCBs)



Attractive Properties to Industry

- Low flammability
- Fire resistant
- Chemical stability
- Electrical insulating properties
- Durability
- Resistant to degradation
- Softener and plasticizer

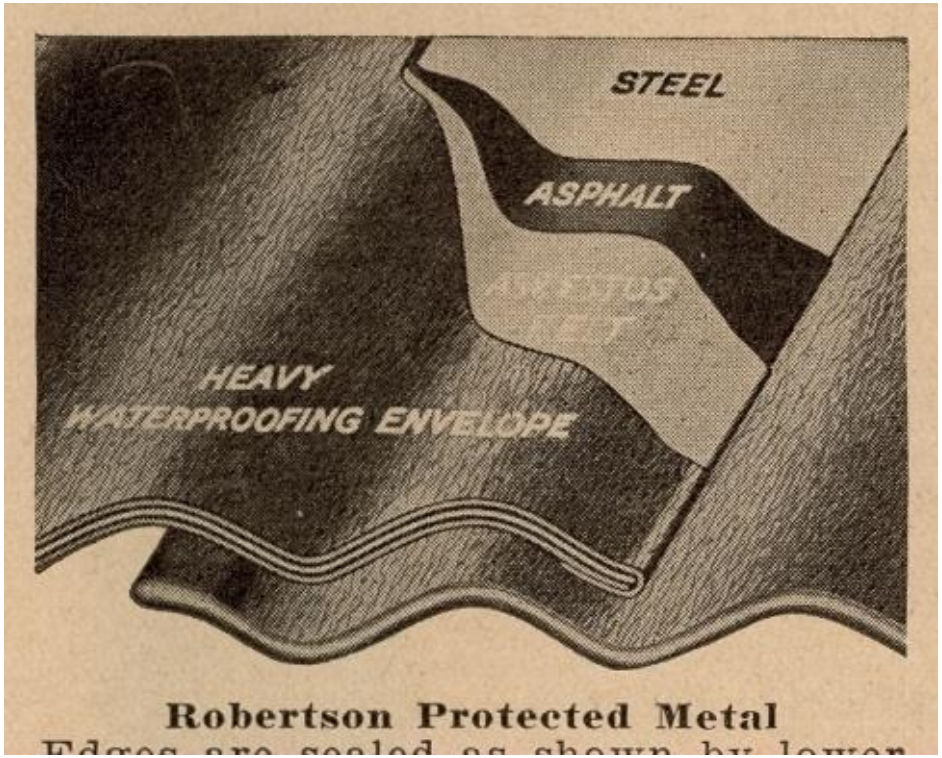
FLAME SAFE

Mamun2a - CC ShareAlike 2.5 license

PCB use…

- Transformers
- Capacitors
- Caulking & grout
- Hydraulic fluids
- Oil-based paints
- Fluorescent light ballasts
- Lubricating & cutting oils
- Floor finishes
- Fire retardants
- Oil insulated high voltage distribution cable
- Thermal Insulation materials (foam, felt)
- Carbonless copy paper
- Inks & dyes
- Adhesive/mastic
- PVC coating for electrical wire & components
- Other oils


DISTRIBUTION TRANSFORMER
READ IM-130 BEFORE OPERATING
FILLED WITH NON-PCB MINERAL OIL WHEN MANUFACTURED (LESS THAN 1 PPM)
KUHLMAN
CORP
U.S.A.
MFG I.D. / SER NO: KU4667320901
P/N: 225015C001
1 ø (OA) 60 HZ
H V 23900GRDY/13800
L V 120/240
HV MAT: AL
LV MAT: AL
WT LBS: 905
65°C RISE
GAL OIL: 40.1
KVA: 75.0
%IMP 85°C: 1.7
MFG DATE: 05/09
HV BIL: 125 KV
LV BIL: 30 KV
H1
A B C D
X1 X2 X3
LV/2
LV
SUB POLARITY



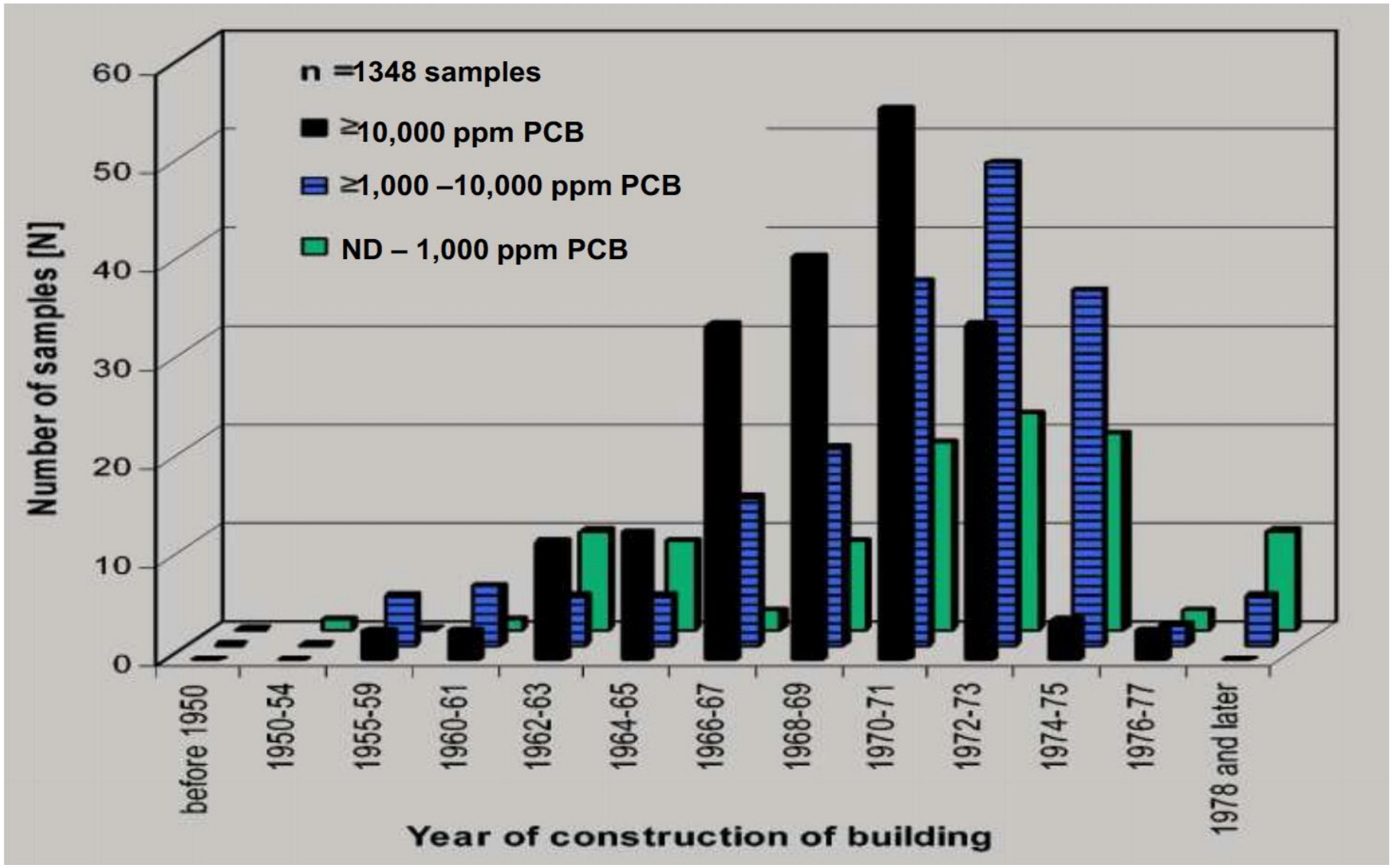
Robertson Protected Metal

Edges are sealed as shown by lower


IN ENGLAND . .
THEY KNOW HOW R-P-M CAN TAKE IT
ROBERTSON PROTECTED METAL


IF THEY COME . . how soon could your plant come back ?
ROBERTSON PROTECTED METAL


02/15/2012 10:48


n =1348 samples
≥10,000 ppm PCB
≥1,000 –10,000 ppm PCB
ND – 1,000 ppm PCB
Number of samples [N]
0
10
20
30
40
50
60
before 1950
1950-54
1955-59
1960-61
1962-63
1964-65
1966-67
1968-69
1970-71
1972-73
1974-75
1976-77
1978 and later
Year of construction of building

Toxicity & Exposure

- Extremely persistent in the environment
- Acute and chronic health effects
- USEPA: "Probable human carcinogen"
- International Agency for Research on Cancer:
  - Group 1

Regulatory Framework

- **Driven by:**

  The Toxic Substances Control Act ("TSCA")

- **Enacted in 1976**

- **"Reformed" in 2016**

PCBs Regulations:

Title 40, Code of Federal Regulation (CFR) Part 761

1. The mere presence of PCBs in coatings does not automatically involve the EPA and TSCA.
2. 40 CFR §761.3 defines paint that contains PCBs at concentrations of greater than 50 ppm as an "unauthorized use"

Definition: PCB Bulk Product Waste = PCBs > **50 ppm**

Note: Coatings with PCBs < 50 ppm can remain in-place.

- ✓ **That being said…**

….there is NO affirmative requirement in TSCA to sample coatings for PCBs

✓ Other regulatory drivers:

- state or federal storm water PCB reduction programs
- state industrial site closure regulations
- local or state school building maintenance programs

The regulated community is exposed to potential liability from:

- PCBs have certain tox properties, and EPA chose to ban them;
- However, there are limited requirements to sample and evaluate PCB content in coatings;
- Burdensome requirement to remove PCB Bulk Product Waste, if detected
- Releases of PCB paint to adjacent surfaces constitute PCB Remediation Waste, if found > 1pm.
- Secondary impacts will not be solved until source is removed

Do I Need to look for PCBs in Building Materials?

- No specific EPA requirement to characterize *building material* for PCBs that are not being disposed;
- Age of building is important indicator (1950- 1978)
- The use of PCBs in building products is prohibited under TSCA.
- Improper disposal and/or storage of PCB contaminated material (e.g., painted equipment and building materials) at regulated levels is a TSCA violation.
- Careful Planning is Critical
- Initial Visual Survey and Inventory

Restricted Universal Wastes

Restricted Universal Wastes

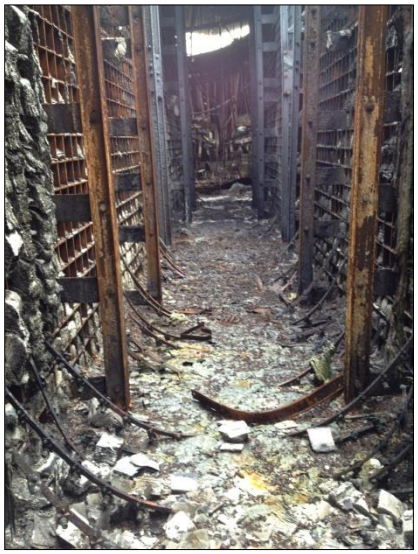
- **Electronic devices (E-Waste):**
  Cathode Ray Tube (CRT), televisions, monitors, smoke detectors, etc.
- **Batteries:**
  Exit Lighting, emergency lights, automotive batteries, etc.
- **Electric Lamps:**
  Fluorescent tubes and CFL bulbs, HID lamps, sodium vapor and neon lamps
- **Mercury-containing equipment:**
  T-stats, manometers, gauges, instrumentation
- **Freon-containing equipment:**
  AC-units, refrigerators, water coolers, etc.
- **Radioactive materials:**
  Tritium Containing Exit Signs, Medical and testing equipment

Other Hazardous Materials

- Contractor Supplied Materials
- CAT Branded products (oil, grease, paints, coolants etc)

Who Benefits from the Findings?

- EHS Personnel
- Facility Management and Maintenance Personnel
- Contractors
- Employees
- Planners & Designers



Data Management Challenges

- Significant Quantity of Data collected over time
- Detailed location information is critical
- Multiple types of data (Laboratory, Photos, Reports etc.)
- Accessibility/Access
- Control & Distribution

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