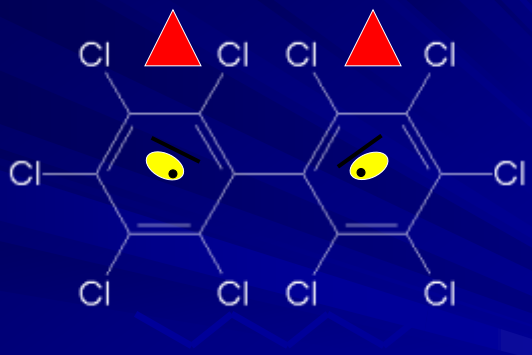
NEWMOA – PCBs and TSCA



- Kim Tisa, PCB Coordinator
- US EPA Region 1

The Demise Begins

- In 1976, over concerns about the toxicity and persistence in the environment of PCBs, Congress enacted Section 6(e) of the Toxic Substances Control Act (TSCA)
- In 1979, PCBs were banned for all uses except “totally enclosed uses”, such as transformers, capacitors, vacuum pumps and hydraulic fluids
- In 1998, PCB Disposal Amendments

Where does that leave us today?

- The TSCA PCB regulations (40 CFR Part 761) place prohibitions on the use (manufacture), processing, and distribution in commerce and specify storage and disposal requirements for PCBs and PCB items
- 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

PROJECT GENERAL STEPS
Site Characterization, Cleanup and Disposal

- Investigate
- Delineate
- Determine cleanup criteria and develop cleanup plan
- Perform cleanup and verify
- Dispose of waste according to regulations
- Document

PROJECT CONSIDERATIONS

- Do I need to look for PCBs
- If I find PCBs, is my site regulated under TSCA
- What are my cleanup options

PCBs in Industrial Applications

- Transformers
- Capacitors
- Hydraulic fluids
- Oil-based paints
- Fluorescent light ballasts
- Lubricating & cutting oils
- Floor finishes
- Fire retardants
- Thermal Insulation materials (foam, felt)
- Caulking & grout
- PVC coatings for electrical wire & components
- Carbonless copy paper
- Inks and dyes
- Adhesives/mastic

In fluorescent light ballasts

SMALL CAPACITORS

PCB Small Capacitor of the type that can be found in clock systems. Trade Name is indicative of PCB content as well as the absence of the statement "No PCBs"

Small Capacitor which does not contain PCBs of the type that can be found in clock systems. Marking "No PCBs" indicates that it was manufactured without PCBs.

TRANSFORMERS

- Transformer Spill and Weepage

Photos

- Pad-mount Transformer with Spill

DEFINITIONS § 761.3

- PCB remediation waste
- PCB bulk product waste
- Excluded PCB product

PCB Remediation Waste § 761.3

- Material is considered a TSCA *PCB Remediation waste* if:
  - Disposed prior to April 18, 1978 and is currently at ≥ 50 ppm
  - Original PCB source ≥ 500 ppm beginning on April 18, 1978 and currently any concentration (≥ 1 ppm)
  - Original PCB source ≥ 50 ppm beginning on July 2, 1979 and currently any concentration (≥ 1 ppm)
  - Any concentration if from an unauthorized source
  - Burden of Proof and Presumption of no unreasonable risk

PCB Bulk Product Waste

Definition at § 761.3

" 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"

Issues

- The use of PCBs in non-liquid manufactured building products at >/= 50 ppm is prohibited under TSCA.
- Manufactured products containing PCBs have been found in many buildings and structures
- Caulk typically contains PCBs at very high levels - %
- The PCBs may migrate to a limited extent to surrounding materials (air, soil, masonry).
- Typical renovation procedures can increase exposures to workers and building residents, including children.

PCBs in Building Materials

- Considerations
  - 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

PCB Bulk Product Waste Disposal

Bulk Product Waste (761.62)

examples: caulk, applied dried paints, varnishes, other similar coatings or sealants, Galbestos, building substrates

- Performance-based disposal
- Disposal in Solid Waste Landfill
- Risk-based Disposal Approval
- Daily Cover/Roadbed

Source Removal
*PCB Bulk Product Waste**

- Caulk removal
  - Strip out
- Paint removal
  - Abrasives
  - Chemicals
  - Hydroblast
  - Dry Ice

* 40 CFR 761.62

Adjacent Surfaces and Surrounds
*PCB Remediation Waste**

- Grind/cut out areas of visual "source material" classified as *PCB bulk product waste*
- Apply 761.61 options, as appropriate

* 40 CFR 761.61

PCB Bulk Product Waste Region 1 Sites

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

Cleanup of *PCB Remediation Waste* – § 761.61

- Three options for Site cleanup
  - Self-implementing Approach
  - Performance-Based Approach
  - Risk-based Approach

Self-implementing Approach (SIP) § 761.61(a)

- Most appropriate for small-moderate sized sites (< 1-acre)
- Excludes certain sites (surface water/sediments)
- Notification/Certification requirements with USEPA, states, and local environmental agencies
  - 30-day default timeframe not applicable unless SIP requirements are followed in their entirety
- Prescriptive procedures for sampling and cleanup
  - Requires compliance with all sampling and analytical procedures
  - *In Situ* ("as found") sampling with no compositing for characterization
  - Subpart N or Subpart O

PCB Cleanup Levels

(bulk *PCB Remediation Waste/Porous Surfaces)*

- High Occupancy (> 6.7 hrs/week avg.)
  - ≤ 1 ppm
  - ≤ 10 ppm w/ cap*
- Low Occupancy (<6.7 hrs/week avg.)
  - ≤ 25 ppm
  - ≤ 50 ppm with fence and sign
  - < 100 ppm w/ cap*

* Cap: minimum 10" compacted soil, or minimum 6" asphalt or concrete

PCB Cleanup Levels
(*Non-Porous Surfaces*)

- High Occupancy (> 16.8 hrs/week avg.)
  - ≤ 10 ug/100 cm²
- Low Occupancy (<16.8 hrs/week avg.)
  - < 100 ug/100 cm²

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Verification Sampling after Removal

§ 761.61(a)(6) - detailed and prescriptive methods for:

- Sample extraction and analyses
- Number of samples, depths, and locations
- Reporting
- Subpart O (*porous*) or Subpart P (*non-porous*)

** Compositing provided adequate delineation

Cleanup Verification of *PCB Remediation Waste*

- Field screening methods may be used in a dynamic sampling approach for initial verification
- Final verification sampling uses a 5' x 5' sampling grid over remediated area (minimum 3 samples) and definitive laboratory analysis methods but may use Subpart Q
- Cleanup continues until established cleanup levels are reached

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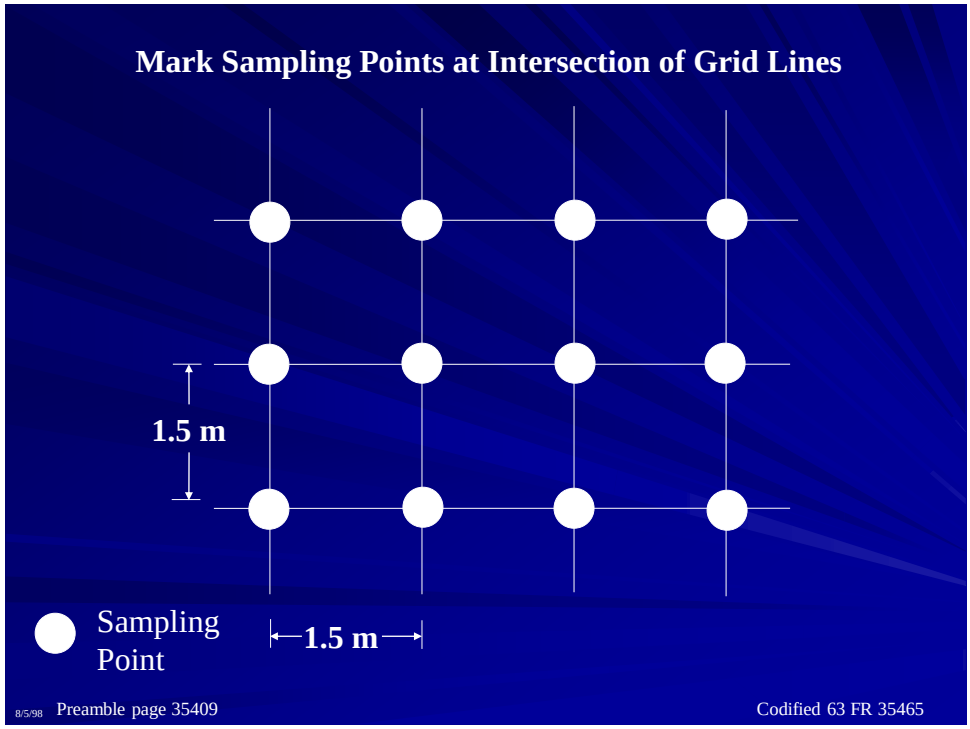
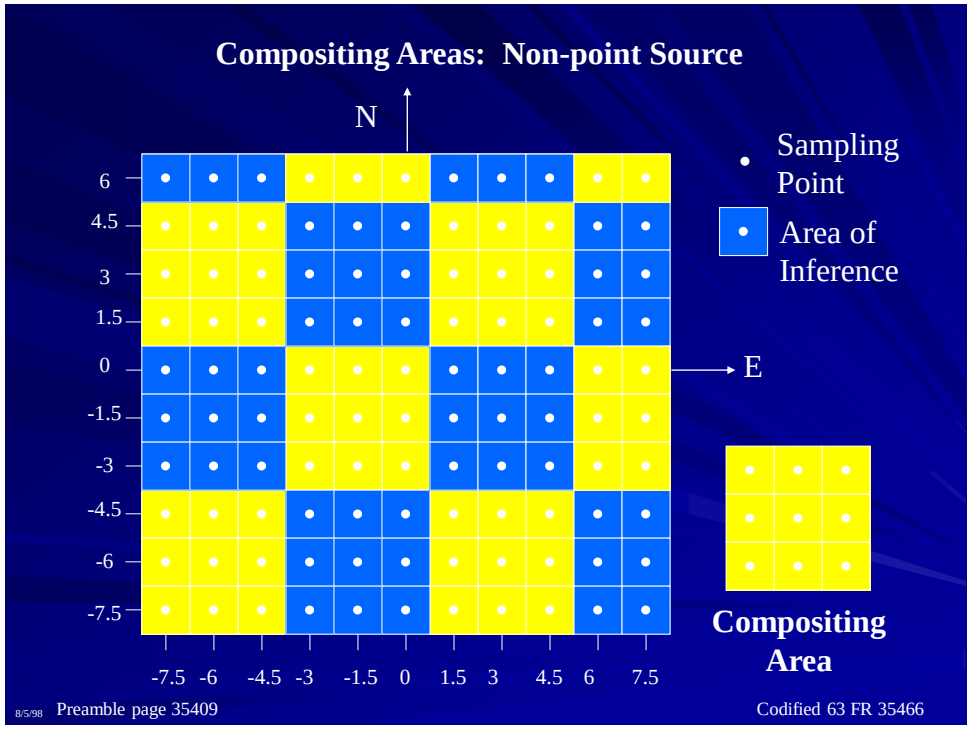
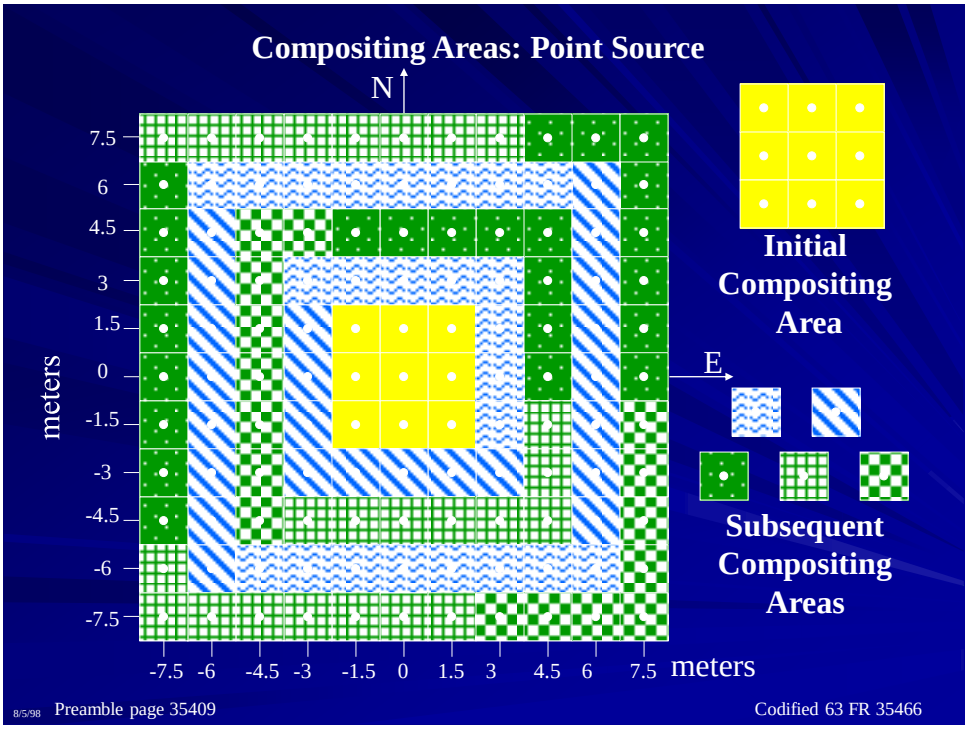
Subpart O - Composite Sampling

- Allowed provided adequate characterization
- Consider whether point-source or non-point source
- 9-sample max per composite


Mark Sampling Points at Intersection of Grid Lines
1.5 m
Sampling Point
1.5 m
8/5/98 Preamble page 35409
Codified 63 FR 35465


Compositing Areas: Non-point Source
N
E
6
4.5
3
1.5
0
-1.5
-3
-4.5
-6
-7.5
-7.5 -6 -4.5 -3 -1.5 0 1.5 3 4.5 6 7.5
Sampling Point
Area of Inference
Compositing Area
8/5/98 Preamble page 35409
Codified 63 FR 35466



Disposal of *PCB Remediation Waste*

- Liquids § 761.60(a)
- ≥ 50 ppm (dewatered waste)
  - Existing TSCA Facilities
  - RCRA §3004 or §3006 hazardous waste landfill
- < 50 ppm (dewatered waste)
  - Existing TSCA Facilities
  - RCRA §3004 or §3006 hazardous waste landfill
  - State approved solid waste landfill

Risk Based Option 40 CFR § 761.61(c)

- Deviation from decontamination, storage, and disposal requirements under 761.61(a)
- Recommended for complex or large sites and all media types
- Requires EPA approval
- Public notification process may be required
- Risk Assessment: state vs. federal
- Possible Long-Term O&M / Financial Assurance

Performance Based Option 40 CFR § 761.61(b)

- Notification not required to perform removal work
- Cleanup to less than 1 mg/kg total PCBs - Subpart O
- Dispose of all waste at TSCA-approved facility
- Document cleanup and keep records on file
- Submit § 761.61(a) Notification to EPA

Pole-Top Transformer Spill

November 2006

- Bank closed 4 days
- 4 dogs decontaminated
- ~ $150,000 cleanup cost

Management in Place

- Not acceptable for *PCB bulk product waste* (§ 761.62)
- May be acceptable for surrounding materials (§ 761.61)
- *Possible* short-term interim measure
  - Consultation with EPA
  - Sampling/O&M may be required

Excluded PCB Products

- Must meet all criteria under § 761.3
  - ✓ concentration
  - ✓ sold/distributed in commerce prior to 1984
  - ✓ no dilution
- May be left in place without further restrictions/requirements
- State requirements may require removal


CAULK
BETWEEN WINDOW
& INTERIOR SILL
164 PPM


CAULK
AROUND
DOORS
21,000 PPM


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

Project Impacts

Project Consideration

Which PCB option is best for my site?

- Schedule
- Site size and End Use
- Contamination type and extent
- Special removal requirements
- Verification sampling
- Public involvement

Other Project Considerations

- Excavation/Decon set-up
- Storage limitations (lined roll-offs, containment areas, time restrictions)
- Transportation requirements (vehicles, manifests, PCB activity notification)
- Field Screening and Laboratory TAT
- Waste management / disposal
- Other federal/state/local permits/certs

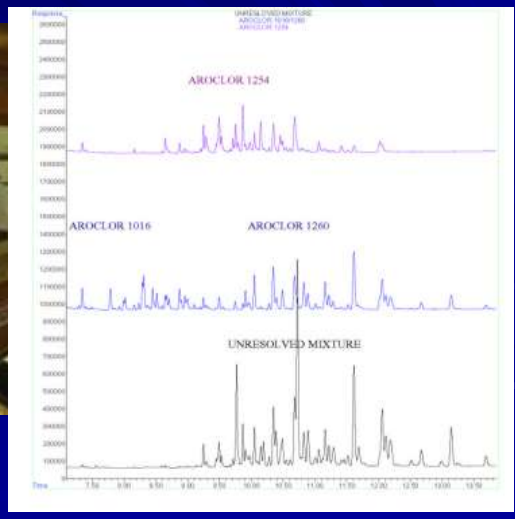
PCB Project Dos and Don'ts

- DO:
  - Know your Site
  - Delineate nature/extent
  - Appropriate and Representative Sampling
  - Appropriate analytical data
  - Contractor Plans consistent with remediation
  - Consider waste management/storage
  - Count on the unexpected

PCB Project Dos and Don'ts

- DON'T:
  - Forget your Lab
  - Mishandle Waste
  - Re-contaminate cleaned areas
  - Improperly Decontaminate
  - Collect Samples while still conducting cleaning
  - Time delays
  - $$$

ANALYTICAL CONSIDERATIONS AND PITFALLS

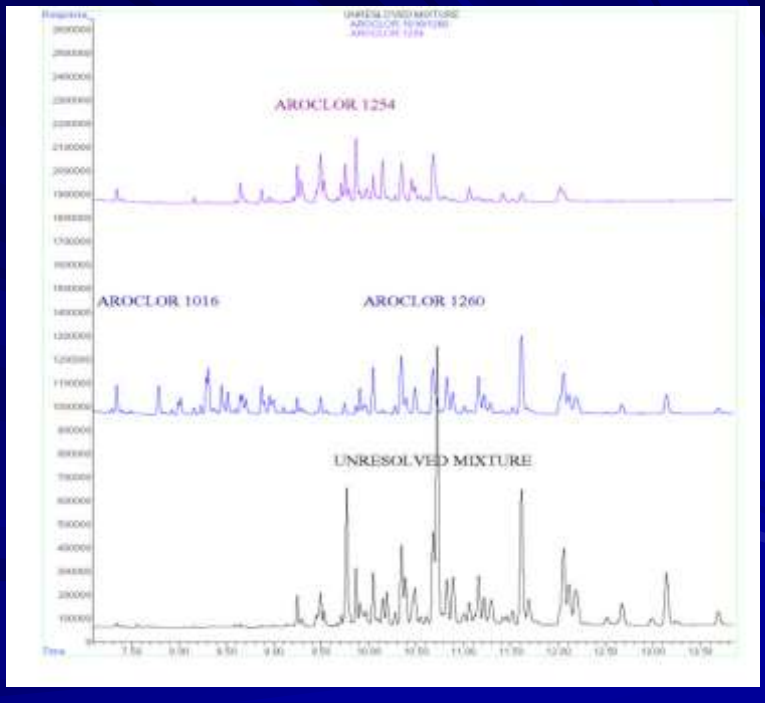


Lack of Quality Assurance/ Quality Control

- A properly planned analytical program with adequate QA/QC samples is critical
- QA/QC Program should include:
  - Field and Lab Duplicates
  - Method blanks
  - Temperature blanks
  - Field Blanks and MS/MSDs
  - Laboratory PEs

LAB COMMUNICATION ISSUES

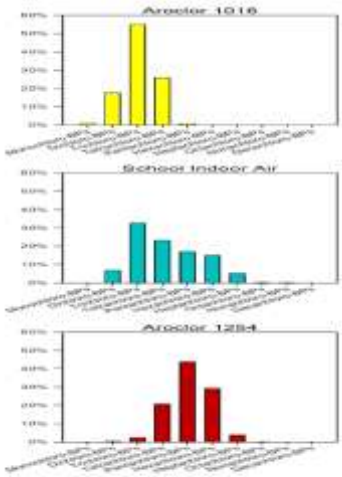
- Discuss Project Requirements
- Methods
  - Soxhlet extraction (3540) preferred
  - Extraction by sonication (3550) not preferred
    - Inefficient
    - Not applicable to all matrices
    - Not allowed under many state QA programs
  - Analytical: 8082 (8270, 680, 1668)
  - Alternative methods require correlation study
    - Subpart
  - Reporting limits



AROCHLOR VS HOMOLOGUE?

Estabrook School (Lexington MA) Investigation

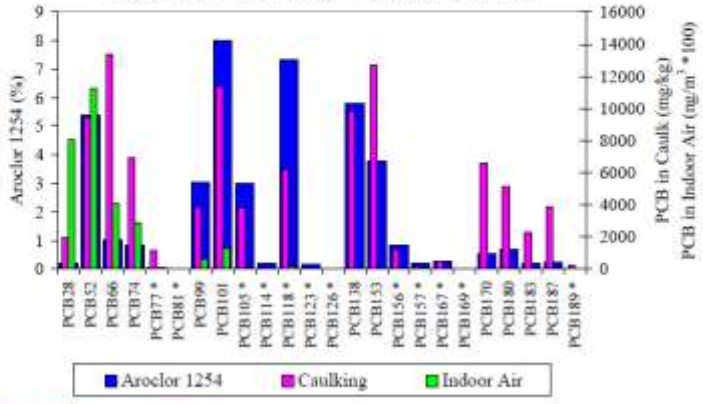
- EH&E (2011) Report
- Site-specific risk assessment
- Homologue pattern (at right) used to justify alternate Aroclor 1016 RfD



PCBs in Denmark Homes

Danish Health Protection Agency, 2012

- 83 PCB-contaminated apartments
- 27 congeners in caulking, indoor air, & serum
- Plotted against Aroclor 1254 composition



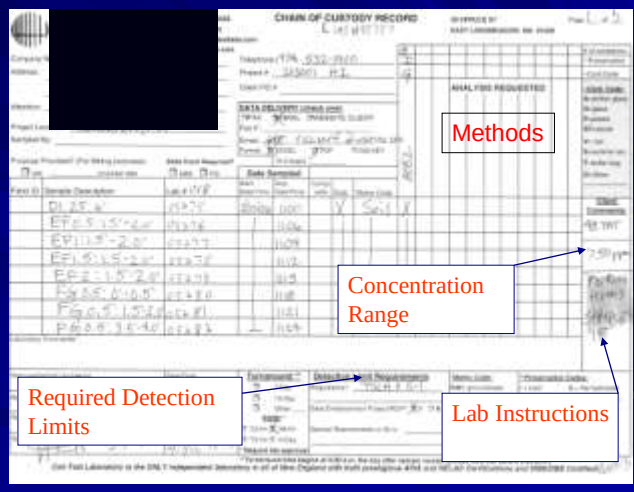
Incorrect/Incomplete COC Info.

1) Analytical and extraction requirements

2) Expected concentration range

3) Required reporting limits

4) Special Instructions



Activities to Date

- September 2009 caulk guidance - fact sheets, Q & A's, Schools Information Kit
- *Steps to Safe Renovation and Abatement of Buildings that have PCB-Containing Caulk*
- Public health levels for PCBs in indoor air for schools – September 2009
- Ballast Guidance - December 2010
- Disaster Debris Guidance - 2011
- ORD: PCB mitigation and exposures assessment in buildings - 2012
- *PCB bulk product waste* reinterpretation - 2012

http://www.epa.gov/epawaste/hazard/tsd/pcbs

PROPOSED / NEW CHANGES

- April 2010 ANPRM PCB Uses
- September 2012 - Revisions to Manifesting Regulations (direct final)
- Upcoming – Ship Sampling Guidance

Contacts and PCB Info

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  Katherine Woodward, Project Manager
  617-918-1353
  woodward.katherine@epa.gov

- Caulk Hotline: 888-835-5372
- *http://www.epa.gov/epawaste/hazard/tsd/pcbs*
- *http://www.epa.gov/region1/cleanup/pcbs/index.htm*

Questions