Tackling PCB Brownfields Sites in Massachusetts through Successful State & Federal Regulatory Coordination

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Brownfields Come In Many Forms

“Classic” Brownfields: Abandoned, crumbling factory with serious public safety risks, including asbestos

Vacant, light commercial property: often involving waste drums, contaminated debris, and solid waste
Brownfields Come In Many Forms

- Partially or under-utilized, vacant private or public properties, including FUDS

- Open space, including former junk and scrap yards with surficial contamination, former landfills with varying caps, leachate, gas issues and land use restrictions
“What is a potential common denominator for all these sites?”

Presence of PCBs at levels **warranting** State and EPA regulatory coordination

- Significant Assessment & Cleanup Costs
- TSCA is NOT a State delegated
- Different Cleanup Endpoints (State vs Federal)
- Working “at risk” may result in enforcement action, work “do-over” and delays
- State Semi-privatized vs EPA “Approval-Based” Program Management will control pace of brownfields redevelopment project
- "Last minute" notification may result in potential delays in approval process
Toxics Substances Control Act (TSCA)

- Congressional enactment of law [Section 6(e)] due to toxicological and persistence concerns (1976)
- PCB ban for all uses except “totally enclosed uses” (e.g., transformers, capacitors) (1979)
- TSCA PCB regulations (40 CFR Part 761) prohibit manufacturing, processing, distribution in commerce, use and disposal of PCBs / items AND include owners of PCB-contaminated sites
- **TSCA program is NOT a State-delegated program**
  - Further, EPA and State regulations will apply
    - Massachusetts Chapter 21E and the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000
# PCB Materials Commonly Found at Brownfields Sites & Regulatory Requirements

<table>
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<tr>
<th>PCB Articles, Containers &amp; Liquids (40 CFR 761.60)</th>
<th>PCB Remediation Waste (40 CFR 761.61) [Waste containing PCBS as a result of spill, release or unauthorized disposal]</th>
<th>PCB Bulk Product Waste (40 CFR 761.62)</th>
</tr>
</thead>
</table>
| • Capacitors & Transformers  
• Electric Motors & hydraulic machines  
• Natural Gas Pipeline Systems  
• PCB contaminated containers  
• Mineral, hydraulic & cutting oil  
Less than 50 ppm not subject to TSCA | • **Bulk PCB Remediation Waste**: Existing Soil Piles, In-Situ Soil, Sediments, Sludge  
• **Porous Surfaces**: Unpainted / painted structural surfaces (floors, walls, ceilings) made of concrete, wood, plaster, plasterboard  
• **Non-Porous Surfaces**: Smooth unpainted solid surfaces that limit penetration of liquid containing PCBs  
• **Liquid PCB Waste**: Homogeneous flowable material containing PCBs and no more than 0.5% by weight non-dissolved material | • **Caulking and grout**  
• **Adhesives and dried oil-based paints**  
• **Galbestos**  
• **Fluorescent light ballasts**  
• **Dried oil-based paints**  
• **Plastic coatings insulating wires and cables**  

**PCB Remediation Waste Determination Needed**

NJIT, 2012
“I found PCBs at my Site…Now What?”
Frequently Asked Questions

• Is my site regulated under TSCA or State Law?
  – Hint: If “material” is considered TSCA PCB Remediation Waste it is regulated under TSCA

• How do I characterize (delineate) Remediation Waste material?

• What cleanup options do I have under Federal or State law?

• Must I perform post-cleanup verification?

• What about PCBs in building materials?

• What about disposal of specific PCB materials and containers at sites?
Is My Site Primarily Regulated Under Federal or State Law? Or both?

• **Federal:**
  - TSCA PCB regs (40 CFR Part 761) only apply to materials with *as-found concentrations* > 1 ppm
  - Consider *as-found PCB concentrations; date of release, and original source concentration* when determining if TSCA PCB Remediation Waste is at play
    • *As-found conc* is the conc of PCBs at the site during discovery (before excavated or mixed with clean soil)
    • Phase 1 EA aids in determining *date of release and original source concentration*

• **State of Massachusetts:**
  - C.21E and MCP *requires notification* if PCB conc. detected:
    • Soil: > 2 mg/kg (RC-S1); 3 mg/kg (RC-S2)
    • GW: > 0.0005 mg/L (RC-GW1); > 0.005 mg/L (RC-GW2)
TSCA PCB Remediation Waste Includes the Following Materials (NJTI, 2012)

- Material with *as-found* PCB conc. > 50 ppm resulting from release that occurred prior to April 18, 1978
- Material with any PCB conc. stemming from release that occurred between April 18, 1978 to July 2, 1979 where *original source conc. was* ≥ 500 ppm
- Material at any PCB conc. whose *original source conc.* is > 50 ppm and released on or after July 2, 1979

TSCA Notification required except for performance-based remediation

No EPA Involvement if PCB Remediation Waste is not present.

“Material” subject to State law
TSCA PCB Remediation Waste Determination (Cont’d)

- If PCB Remediation Waste is not present, there is no EPA involvement but material subject to any applicable State laws
- If after completing research, a determination or reasonable assumption cannot be made regarding the time of release or original source concentration, it is assumed that the material IS a PCB remediation waste subject to requirement in 40 CFR 761.61
  - Federal TSCA PCB program/process would take precedence over state
  - Coordination invoked to ensure State compliance
“Testing the Rules”

- Scenario at Play: PCBs (Aroclor 1260) detected at 2 – 7 ppm in several soils samples collected from a former electrical substation that operated from 1957 – 77. Sanborn fire insurance maps note several transformers. Substation dismantled in 1977 but no reported PCB or oil spills at the site. How is the PCB-contaminated soil regulated?
“Testing the Rules”

• Answer: Release date is uncertain. Given site used as an electrical substation for 22 years, PCBs likely associated with electric equipment (source). It is known that dielectric fluids commonly used in electric equipment installed 1950-60’s. With the spill occurring before 4/18/78 and the fact that the as-found conc are < 50 ppm, Federal PBC regs are not applicable. Follow State law.

   — When in doubt consult TSCA Coordinator
Characterizing and Delineating TSCA PCB Remediation Waste at the Site

- Start with CSM Development
  - Sources, release mechanism, waste class will dictate sample location/depth, collection method and sampling density
  - Follow 40 CFR 761.265, also see U.S. EPA. PCB Revitalization Guidance. Nov. 2005

- Characterization sampling underpinnings
  - Based on as-found conditions (i.e. non-disturbed areas) vs samples collected from stockpiles or roll-off containers generated during excavation or demo activities (State requirements may vary)

- Seek TSCA Coordinator approval
# Available PCB Cleanup Options under TSCA

<table>
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<tr>
<th>Disposal &amp; Remedial Options</th>
<th>Site Size / Determining Factors</th>
<th>Exception / Special Considerations</th>
<th>EPA Notification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Implementing Cleanup &amp; Disposal 40 CFR 761(a)</td>
<td>Small to moderate size Sites / Cleanup Level based on proposed use / occupancy level</td>
<td>Not useable for surface water or sediments. Prescriptive sampling &amp; cleanup. LTS / deed restriction needed if contamination left behind. Requires compliance with all sampling &amp; procedures</td>
<td>Notification/ Certification requirements w/ EPA, State, local government</td>
</tr>
<tr>
<td>Performance Based Disposal 40 CFR 761(b)</td>
<td>Well defined site &amp; wastes</td>
<td>Notification NOT required. PCB cleanup to &lt; 1 mg/kg total PCBs with Subpart O verification sampling; waste disposal at TSCA-approved facility</td>
<td>No O&amp;M. Need to document cleanup w/ records on file.</td>
</tr>
<tr>
<td>Risk Based Cleanup or Disposal 40 CFR 761(c)</td>
<td>Complex or large Sites</td>
<td>Good for all media, requires EPA approval, all info under 40 CRF 761.61(a)(3) and risk exposure assessment. Public Notification (?)</td>
<td>Long-Term O&amp;M &amp; financial assurance</td>
</tr>
</tbody>
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Verification of TSCA PCB Remediation Waste Cleanup at the Site

• Verification sampling following cleanup to assess remediation goals attainment
  – Prescriptive, uses square-based grid system over sampling area
  – compositing acceptable but specific methodology

• Specific analytical methods (may differ btwn Fed / State)
  – PCB Aroclors (method 8082 from SW-846);
  – Alternate method for homologues & congeners [better PCB structure description (incl. weathering det.) ]

• Seek TSCA Work Plan approval
What about PCBs in Building Materials?

- PCB Bulk Product Waste (761.62)
  - Caulk, paint, mastic, laminates, adhesives
- PCB Remediation Waste (761.61)
  - Concrete, masonry, brick, window frames, exterior soils, furnace
- Building products found to contain ≥ 50 ppm PCBs are classified as under TSCA
- Cleanup Endpoints: prescriptive or risk-based
- Disposal / Manifest requirements
- Contact TSCA Coordinator / Invoke State RCRA staff oversight
PCB Sites in Southeastern Massachusetts

- City Pier, Fall River
- Aerovox, New Bedford
- NSTAR, New Bedford
City Pier Site - Fall River, MA
“Lessons Learned”

- Lumber yard with milling operations from 1888 – 1950’s. Various post 1950’s uses (boat storage and river access). Historical PCB-fill dumped onsite (0 – 8’ bgs).
- EPA Brownfields TAG revealed PCB remediation waste & State notification requirement
- **Issues**: Delay in TSCA involvement; location and approach to sampling (targeted not site-wide sampling;); emphasis on field screening data versus fixed lab; cost overruns and project delays (2008-09)
- **Fixes**: TSCA Coordinator guidance and approval in development/approval of PCB Sampling Plan (grid system); cleanup endpoint 1ppm (2 ppm underneath cap)
- Risk-Based Cleanup/Disposal Approval (2011); TSCA Cap/Seawall Repair RFP (2012)

**Result**: Future site of City Marina (100 slips)
New Bedford, MA
“The Sea Scallop Capital of the World”

• From the 1940s to the 1970s, electrical parts manufacturers discharged wastes containing PCBs and metals
  – Discharges into New Bedford Harbor, resulting in very high levels of PCB contamination throughout the waters, sediments and biota of the Harbor and parts of Buzzards Bay (NB Superfund Site)
  – Contamination spread throughout the City via CSO overflows into residential yards and school properties
Former Aerovox Mill Site - New Bedford

- Former electrical capacitor manufacturing facility that used PCBs from 1940 to 1978
- Largest user of PCBs in New Bedford
- Contributed a significant amount of the PCB waste present in New Bedford Harbor today
  
  Sept 2012: $336M Settlement with AVX filed for NBH cleanup – largest in cash settlement in Superfund history

- 450,000 square foot building on 10 acres
- All building materials & contents considered hazardous
- Vacant since 2001 in dense residential & industrial neighborhood; City-owned via tax foreclosure
Former Aerovox Site: An EPA/MassDEP/AVX/City Success Story

PARTNERED APPROACH

EPA: NTCRA commenced in 2009 (3-way Agreement)
AVX: performed building demo and capping (TSCA cap)
City: performed transport / off-site disposal of debris; backfilled and post removal site controls
MassDEP: Oversight support during and lead program after NTCRA

Two + years of negotiations resulted in three separate agreements with AVX, Inc. (2012)

USEPA & Department of Justice - Administrative Order of Consent
MassDEP & Attorney General Office - Administrative Consent Order
City of New Bedford - Settlement Agreement

KEY FEATURES

- Eliminated significant threat to public health/safety – significant fire hazards & threat to densely populated neighborhood
- Steps taken to ready Site brownfields redevelopment & return to tax base
- Success due to public/private partnership
- Early TSCA / RCRA / C21E & MCP Coordination
- Removed huge eyesore from community
- $34 million for demolition, disposal, assessment & cleanup
- Soils above 2 ppm: TSCA cap / 21E AUL

PENDING MCP RESPONSE ACTIONS (Post EPA NTCRA)

- Tier Classification, Permit Application (Fall 2012)
- MassDEP to provide direct oversight & review approval of each response action submittal
- MassDEP will coordinate with USEPA (TSCA program) to ensure compliance with additional TSCA requirements
- MassDEP to coordinate w/ City & AVX regarding brownfields redevelopment planning
NSTAR Former MGP Site, New Bedford

- Former MGP site / coal tar impacted sediments
  - Ongoing sheen condition
- Sampled for PCBs due to proximity of New Bedford Harbor Superfund Site
  - 120 sample locations: > 50 ppm PCB triggered TSCA
- TSCA / 21E Remedy
  - Sheetpile cut-off wall installed at end of Inner Slip
  - Limited dredging of Outer Slip sediments - consolidated in Inner Slip
  - In-situ solidification of Inner Slip sediments
  - Cap & AUL(water)
  - $7M remediation
NSTAR Former MGP Site, New Bedford
(cont’d)

• TSCA Jurisdiction
  – Proposed remedy suitable
  – Public meeting & comment period
  – Risk-based approval under 761.61(c)

• Multi-agency coordination
  – Permitting: 18 months
  – Construction: 5 months
    • Insitu-Slurry, Aqua Block cap, Benthic Substrate surface to promote biological receptor growth in coal tar area (now stabilized)

• Future Hotel / Marina

Winner of the 2012 New England Environmental Business Council Huber Energy-Environment Award
Summary of “Take Away” Points

• Jurisdictional / Regulatory
  – Determine whether TSCA & PCB regulations (40 CFR Part 761) apply or not (State cleanup law as a default)
  – Contact TSCA Coordinator / State 21E regulator

• Programmatic
  – Follow Program requirements once you know which program(s) is at play
  – Work Plans (SAP, QAPP, Cleanup Plans)
  – Waste management / disposal / transportation
  – Permitting / Certifications
  – Public Involvement
  – Project Cost / Timeline

CONTACT TSCA COORDINATOR
Future Discussion Points

• Development of Uniform Nationwide TSCA Program Brochures?
  – NJIT published series of 5 brochures (Region 1 effort funded through EPA grant)

• Continue ASTSWMO/ EPA SCC dialogue
  – Length of coordination time / high PCB workload may impact pace of brownfields redevelopment?
  – Adding PCB as a hazardous waste under RCRA?
  – TSCA deferral to RCRA or CERCLA?
  – MOUs or worksharing arrangements?
Future Discussion Points (Cont’d)

• Clarifying or Reforming Risk-Based Approaches under TSCA to mimic RCRA or CERCLA?

• Harmonize TSCA / State PCB cleanup endpoints?
  – Massachusetts PCB soil cleanup of 1 ppm??

• Engage ECOS & brownfields redevelopment community in discussion

• Continue promoting training / frequent dialogue with Regional TSCA Coordinator