EBC New Hampshire TSCA Program

Closure for PCB Contaminated Sites in the Northeast
Welcome

Robert Varney

Chair, EBC New Hampshire Chapter

President, Normandeau Associates, Inc.
Welcome to Eversource Energy

Richard Dumore
Environmental Field Response Supervisor
Eversource Energy
Introduction and Program Overview

Steve Knollmeyer

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Vice President, Technical Sales

Alpha Analytical
TSCA PCBs: What You Need to Know About Subpart Q

Susan Sylvester

President & Chief Financial Officer
Absolute Resources Associates, LLC
TSCA PCBs: what you need to know about Subpart Q
Belly Dancer + Engineer
Testing for TSCA Regulated PCBs

- EPA Region 1 has very specific guidelines and methods that must be followed for the extraction and analysis of PCBs.
- If EPA Region 1 guidance is not followed, the analytical data may be deemed unusable.
- Consider the loss of time, money & increased costs to your project.
PCBs

- Man-made organic chemicals known as chlorinated hydrocarbons
- Manufactured 1929-1979
- Favorable properties
  - Non flammable
  - Chemically stable
  - High boiling point
  - Electrical insulating capabilities
- Like many contaminants, great for manufacturing, but very bad for human health.
Where do we find PCBs?

Although PCBs are no longer commercially produced (since 1979), they are present in products and materials that were produced before the ban. Some examples:

- Transformers & other electrical parts
- Oils & oil based paints
- Floor finish
- Cable insulation
- Thermal insulation
- Adhesives, caulk, plastics
- Carbonless copy paper
Federal PCB Regulations

- TSCA Oct. 11, 1976 authorized EPA to regulate & control PCBs
- Regulations: 40 CFR Part 761
- Governs management, clean up, & disposal of PCBs
Subparts N and O

- 40 CFR Part 761.61 (a)
- Details requirements for clean up and disposal of PCB remediation waste.
- Refers to Subparts N and O for chemical extraction and analysis of PCB samples
- EPA Method 3550 and 3540C are the only approved extraction methods in these regulations.
PCB Extraction Methods

- 3510C: Separatory Funnel Liquid/Liquid
- 3520C: Continuous Liquid/Liquid
- *3540C: Soxhlet Extraction*
- 3541: Automated Soxhlet Extraction
- 3545A: Pressurized Fluid Extraction
- 3546: Microwave Extraction
- *3550: Ultrasonic Extraction*

*These 2 are the only TSCA approved methods*
TSCA Says Soxhlet or Subpart Q

What you really need to know:

➢ The extraction method for TSCA MUST be:
  • EPA 3540C (Soxhlet)
  • Sonication not favored by EPA Region 1

➢ Or, a **comparison study** for an alternate method.
  • Alternate method MUST be performed in accordance with Subpart Q
What does Subpart Q say?

- You must perform a specified study that shows that your alternate method is statistically similar to the Soxhlet method.
- You must analyze project specific samples by your proposed method and the Soxhlet method.
- You must compare your results to the specified criteria in Subpart Q and demonstrate acceptance of the method.
Subpart Q: Why bother?
Subpart Q: Why bother?

If you are analyzing 50 or more samples…

- TAT Improvement: Getting data quicker can save $$ in the field.
- It is green! Savings in solvent, electricity, & hazardous waste.
- The green savings get passed on to your projects by reduced analytical costs.
What the results need to be...

- All samples with concentrations $>\text{the clean up level in method 3540C}$ are $>\text{the clean up level in the alternate method.}$ (no false negatives!)

- All samples, except one, with concentrations $<\text{the clean up level in method 3540C}$ are $<\text{the clean up level in the alternate method.}$ (one false positive allowed)
The alternate study must be performed on a sample matrix that is similar to the site matrix. Study DOES NOT need to be site specific. Must be matrix specific.

*ARA has had approval of one study for multiple sites-
same matrix determined by grain size determination

Interfering materials must also be present

The matrix types are:

Concrete, Sandy Soil, Clay, Sediment
Sample Matrix

- Building materials/debris
  - Caulk
  - Paint
  - General building debris

For the study to work, the sample matrix must be made homogenous. This may not be possible with some building material debris.
Sample Concentrations

- The study is performed on samples that are at or near the clean up level specified for the site in 761.61(a).
- There may be more than one clean up level.
- You will need to communicate the clean up level to the lab.
- The lab may need to composite samples of specific concentrations to meet the study criteria.
- This means that “clean” and “dirty” samples will be needed.
What the lab needs to do

- 10 samples must be analyzed by Method 3540 C to confirm the sample concentrations.
- Additional extractions may be necessary to achieve the concentrations required.
- The same 10 samples must be analyzed by the alternate method proposed.
- The results are compared to the study criteria.
Why bother? Remember:

- TAT Improvement: Quicker Data, Time is Money! $$$
- It’s green! Reduced solvent, electricity, & hazardous waste.
- These green savings can result in reduced lab costs.
- ARA has done it, and we can help you through the process.
Want to ‘Subpart Q’ on your next big PCB project?

Here’s how:

- During investigative work at the site, collect extra sample volume for the study.
- Collect at least 10 (4) oz glass jars of sample from contaminated and non-contaminated areas of the site.
- Submit the study data to EPA PRIOR to analysis or submission of verification sample data to EPA.
- Along with study, submit laboratory SOP to the EPA.
Sequence of Events

- Make sure all involved parties know you are using an alternative extraction procedure, action level and matrix.
- Talk with your Lab and the EPA about the timeline, action level, and matrix, expected sample concentrations, etc.
- Provide collected samples to lab.
- Provide study results and SOP to EPA prior to verification samples.
- Get approval from EPA.
- Submit verification sample results, study and SOP to EPA.
## It Works!

**10 ppm study**

<table>
<thead>
<tr>
<th>Soxhlet</th>
<th>Microwave</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA 3540</td>
<td>EPA 3546</td>
<td>Comments</td>
</tr>
<tr>
<td>11</td>
<td>18</td>
<td>100-110%</td>
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<tr>
<td>27</td>
<td>38</td>
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<td>90</td>
<td>87</td>
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<td>7.6</td>
<td>6.2</td>
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<td>3.5</td>
<td>2.2</td>
<td>&lt;10</td>
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<tr>
<td>23</td>
<td>19</td>
<td>&gt;10</td>
</tr>
<tr>
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<tr>
<td>11</td>
<td>13</td>
<td>&gt;10</td>
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<tr>
<td>7.5</td>
<td>8.7</td>
<td>&lt;10</td>
</tr>
<tr>
<td>9.3</td>
<td>6.8</td>
<td>90-100%</td>
</tr>
</tbody>
</table>
Subpart Q: A Case Study

- Remediation of a commercial property, riverside, previously a machining / manufacturing business.
- Almost 50,000 cubic yards of sediment excavated.
- Over 5,000 samples analyzed for PCBs, 24 hr TAT
- ARA Subpart Q Study received EPA Region 1 approval
- TAT reduced from 72 hrs to 24 hrs
- Reduced on site time by 1/3
- The savings? 
  “DEFINITELY MILLIONS OF DOLLARS”
SUBPART Q Success Story

Before

After
Project Impacts

- Sustainability Goals
- Rapid TAT
- Cost Savings
- Happy Clients
It’s Green!

**Soxhlet Extraction**
- Extraction Time: **18 HOURS**
- 68 KWh, 12 samples: **5.7/sample**
- Solvent Usage/Waste: **125 mL/sample**
- 80 Samples: **48 hours**

**Microwave Extraction**
- Extraction Time: **20 MINUTES**
- 1.5 KWh, 40 samples: **0.04/sample**
- Solvent Usage/Waste: **25 mL/sample**
- 80 Samples: **4 hours**
It’s Official!

- In January 2008, the US EPA provided notice of the addition of Method 3546 (microwave extraction) to SW-846, Test Methods for Evaluating Solid Waste.
- Analytes: Pesticides, SVOCs, PAH, PCB, Herbicides, Phenols, Dioxins and Furans.
- Meets MADEP CAM requirements.
Absolute Resource Associates has received approval from EPA Region 1 in accordance with TSCA Subpart Q Alternative Extraction Procedure, to use microwave digestion.

ARA was the 1st lab in New England to have this approval.

ARA also received approval for a matrix that was not site specific.
Encourage our EPA contacts to be open to, and to promote, greener methods & ideas.

Generate more “green” success stories.

Selling points:
- improved TAT
- reduced costs
- waste reduction

And, it’s all Good for Mother Earth!
Subpart Q: An Alternative Method for PCB Extraction

Susan Sylvester, President, Absolute Resource Associates

The Problem:
- The EPA requires that Soxhlet extraction (EPA Method 3540C) be performed for polychlorinated biphenyl (PCB) analysis, per the Toxic Substances Control Act (TSCA).
- Most people involved in the cleanup/disposal of PCBs don’t realize that published, approved, less expensive, “greener” methods are available in the Federal Register (40CFRPart 761) Subpart Q.
- The laboratory must perform a study to get an alternate method approved, which is easy to do, but the study needs to be initiated by the contractor. Due to the added requirement, contractors generally ask the laboratory to perform the (expensive, cumbersome, & less green) Soxhlet extraction.

The Solution:
Absolute Resource Associates (ARA) has found that Subpart Q studies are well worth the effort, often proving more efficient in terms of time, labor, materials, energy, & waste. Depending on the size of the project, a Subpart Q study can reduce field costs dramatically. The alternative methods can provide 24 hour turnaround time, meaning you can get field work done more quickly and save money.

Benefits of one Alternative Method, Microwave Extraction:
- Reduces extraction time (minutes vs. hours)
- Reduces turnaround time
- Saves money on field related expenses
- Reduces energy usage by over 99%
- Reduces chemical usage by over 90%
- Increases capacity to extract more samples

It’s Green!

Soxhlet Extraction vs. Microwave Extraction

<table>
<thead>
<tr>
<th>Extraction Time:</th>
<th>Extraction Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 HOURS</td>
<td>20 MINUTES</td>
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<tr>
<td>68 KWH, 12 samples:</td>
<td>1.5 KWH, 40 samples:</td>
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<tr>
<td>5.7/sample</td>
<td>0.04/sample</td>
</tr>
<tr>
<td>Solvent Usage/Waste:</td>
<td>Solvent Usage/Waste:</td>
</tr>
<tr>
<td>125 mL/sample</td>
<td>25 mL/sample</td>
</tr>
</tbody>
</table>

The Proof: A Case Study

Remediation of Commercial Property
- Previously a manufacturing business located on a river
- Almost 50,000 cubic yards of sediment excavated

PCB Analysis / Quick Turnaround Required

ARA Historically Acquired EPA Region 1 Approval For A Subpart Q Study
- Over 6,000 samples analyzed, same day Turnaround Time (TAT) by ARA

Results
- Lab Turnaround Time reduced from 72 hours to 24 hours
- Quick Lab TAT = on-site time reduced by 75% as opposed to previous schedule
- Client saved MILLIONS of dollars on this project

How Can You “Subpart Q”?
1) Find a suitable project / client
- Alternate study must be performed on a sample matrix that is similar to alternate study
- Study results must be made available for review
- Sample matrix must be made transparent for your study to work. This may not be possible with certain hosting material sources

2) Communicate plan to EPA & all parties
3) Begin Your Study!
- During site investigation, collect extra sample volume for the study
- 60 liters per 50,000 cubic yards of sediment (permitted & non-permitted areas)

4) Data, Analysis & Submission Notes:
- Submit study data to EPA prior to analysis or submission of verification sample data
- Evaluate the sample matrix by both Method 3540C and the alternative method
- Submit verification sample results, study and TAT to EPA

This Case Study is Available as a Poster Presentation (3 ft x 5 ft)

or electronically via .PDF or .JPG

Just email me to request a copy
Thank you!
Planning for Your Next Infrastructure Upgrade
Project: PCB-Containing Building Material
Challenges & the Implications of Mismanagement

Todd Bridgeo
Senior Project Manager
Weston & Sampson
PLANNING YOUR NEXT RENOVATION PROJECT: PCB-CONTAINING MATERIAL CHALLENGES & IMPLICATION OF MISMANAGEMENT

EBC New Hampshire TSCA Program
Manchester, New Hampshire

Todd M. Bridgeo PE, LSP
bridgeot@wseinc.com
Planning for PCBs in your next renovation/redevelopment project is critical to control scope, schedule, and costs. An effective PCB management strategy will require considering many site- and project-specific factors. The projects discussed here are only examples… Basically, it depends.
WHAT WE TYPICALLY THINK OF...
What we don’t always think of...
Federal (40 CFR 761 [aka TSCA])

- Use
- Assessment
- Remediation
- Disposal

State

- Limited overlap for some things
§761.61
Remediation Waste
Impacted Media
Remove & Dispose
Mitigate Exposures In-place

§761.62
Bulk Product Waste
Material & Adjoining Substrate
Remove & Dispose
Other Regulatory Considerations

PCBs $\geq 50$ mg/kg must be removed and disposed

No Requirement to test materials that are in use

No requirement to report **BUT** requirement to characterize your waste
What happens when we don’t look?
What happens when we do look?
Planning for PCBs

- Project Evaluation
- Measurement & Characterization
- Management Strategy
Project Evaluation

- Project Scope
- Current & Future Use
- Schedule
- Site History
- Budget
Keep Small Projects Small

Strategic Sampling

“Know Nothing”

Strategic Sampling – lite

“Know Nothing, Do Something”

At the very least consider what impacts there could be...
Measurement & Characterization

Bulk versus Remediation Waste... again.

“Coated or Serviced”

Consider source / Project’s Conceptual Model (CSM)
A Powerplant & Chain Forge
The Powerplant

Impacted Paint

Comingled Asbestos & Lead

Full Demolition

Remove & Dispose

Bulk Product Waste
The Chain Forge

- Impacted Everything
- Comingled Asbestos & Lead
- Renovation/Redevelopment
- Selective Removal/Capping
- Remediation Waste
Materials Characterization

Careful source consideration

Multiple lines of evidence

Aim before you shoot...
Management Strategy

What is possible?

Minimize Cost

Do not make it worse!
What happens when we look?
Abatement/Remediation Example

- 1.8 Acre Concrete Slab
- Constructed ~ 1950
- Managed PCB Soil and Caulk During Demolition
Abatement/Remediation

Consider workflows as part of design

Work Plan/Means & Methods

Construction Quality Control
Summary

PLAN
• Start early
• Keep small projects small!

SAMPLE
• Sample for project’s goals/objectives
• Carefully consider source

MANAGE
• Understand workflow and goals
• Don’t create work!
CAUTION
CONTAINS
PCBs
(Polychlorinated Biphenyls)
A toxic environmental contaminant requiring special handling and disposal in accordance with US Environmental Protection Agency Regulations 40 CFR 761 For Disposal Information contact the nearest US E.P.A. Office.
In case of accident or spill, call toll free the US Coast Guard National Response Center: 800-424-8802
Also Contact __________________________
Tel. No. __________________________
Thank you!

Todd M. Bridgeo
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Performance-Based Disposal: A Way Out!

Timothy Snay

Principal | Vice President | Senior Scientist
Ransom Consulting, LLC
PERFORMANCE-BASED DISPOSAL: A WAY OUT!

Timothy J. Snay, LSP, LEP
March 10, 2020
TOPICS WE’LL COVER

Quick Review of PCB Waste Definitions
Approaches to PCB Remediation Under TSCA
Two Case Studies
**DEFINITIONS**

**PCB Remediation Waste**: Waste containing PCBs as a result of a spill, release or other unauthorized disposal if:

1. Disposed prior to April 18, 1978 and PCB concentration > 50 ppm (As Found Concentration)
2. PCB concentration in released material > 500 ppm beginning on April 18, 1978 and currently at any concentration (≥ 1 ppm)
3. PCB concentration in released material > 50 ppm beginning on July 2, 1979 and currently at any concentration (≥ 1 ppm)
4. PCBs at any concentration (≥ 1 ppm?) if from unauthorized use.
DEFINITIONS

**PCB Bulk Product Waste:**
Waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the PCB concentration at the time of designation for disposal was greater than or equal to 50 ppm. The use of PCBs in non-liquid manufactured building products at concentrations equal to or greater than 50 ppm is prohibited under TSCA.
DEFINITIONS

**Excluded PCB Bulk Product:**
Materials which contain PCBs at concentrations of less than 50 ppm, including but not limited to:

1. Non-Aroclor inadvertently generated PCBs as a byproduct or impurity resulting from a chemical manufacturing process
2. Presence of PCBs is not a result of dilution, or leaks and spills of PCBs in concentrations over 50 ppm.
APPROACHES TO REMEDIATION UNDER TSCA

Three Options:

- Self-Implementing Approach (40 CFR 761.61(a))
- Performance-Based Disposal (40 CFR 761.61(b))
- Risk-Based Disposal Approach (40 CFR 761.61(c))
- Prescriptive (grid-based sampling, specific sampling intervals)
  - Subpart N: 10’ by 10’
  - Subpart O: 5’ by 5’
- Limited to soil/solids (concrete, brick, etc.)
- Some flexibility with respect to cleanup criteria (Low-occupancy vs. high occupancy) Up to 100 ppm in soil with cap and deed restriction
SELF-IMPLEMENTING APPROACH

- Requires EPA approval
- Requires post-cleanup reporting
Risk-Based Disposal Approval

- Necessary when deviating from Self-Implementing Approach:
  - Sampling Frequency
  - Risk Characterization
- Requires EPA approval which can take up to 6 months or longer if environmental media affected.
- Provides considerably more flexibility with respect to cleanup goals.

RISK-BASED DISPOSAL APPROVAL
PERFORMANCE BASED DISPOSAL

- Not really a “remedial approach”
- EPA notification not required to perform work (still will likely need to work with state regulators)
- Obligation to remediate/remove ALL PCB Remediation Waste such that remaining PCB concentrations are less than 1 mg/kg (EPA Region 1 references Subpart O sampling approach—not explicitly stated in the regulation).
PERFORMANCE BASED DISPOSAL

- Can provide for a more streamlined and timely remediation
- Can be more expensive from a remediation waste management perspective since the remediation goal is to reduce PCBs to less than 1 ppm in affected media.
- Can dovetail more effectively with site redevelopment than other two approaches (particularly from a timing perspective).
CASE STUDIES

- Hotel Redevelopment, Waltham, MA
- Residential Redevelopment, Westborough, MA
Background Information:

1. Pre-fabricated concrete panel structure constructed in 1968
2. Hazardous Material Inventory (HMI) identified PCBs (Aroclor 1254) in exterior wall seam caulking and exterior door seam caulking up to 37,300 mg/kg
3. No sampling of underlying substrate at time of HMI
Background Information:

1. Due to elevated PCB concentrations in exterior caulking, soil samples (and 1 asphalt sample) collected from perimeter of building
2. PCBs detected in soil samples: 0.1 to 18 mg/kg
3. PCBs detected in asphalt sample: 3.52 mg/kg
4. PCBs present to depth of 1.5 feet bgs.
The source of PCBs in shallow soil and asphalt is leaching of PCBs from PCB-containing exterior caulking associated with weathering processes.

PCBs have not migrated significant distances from the perimeter of the building foundation. The vertical migration is anticipated to be less than 2 feet bgs while the lateral migration is anticipated to be less than 2 feet.
HOTEL REDEVELOPMENT

Release Abatement Measure (RAM) Plan:

- Excavate PCB-impacted soil and asphalt located at the perimeter of the Site building such that the concentrations of PCBs in these media are reduced to less than 1 mg/kg, the Method 1 S-1 soil standard provided in the MCP

- Conduct RAM in accordance with Performance-Based Disposal regulations and manage soil/asphalt as PCB Remediation Waste

- Although not part of the RAM, the cleanup plan called for the management of the concrete panels (intact) as PCB Bulk Product Waste

- Time was of the essence!
HOTEL REDEVELOPMENT

Waste Characterization Surprise:

1. Interesting finding with respect to disposal of PCB Bulk Product Waste

2. Plan was to ship to Waste Management’s Turnkey landfill in Rochester, NH

3. Required to test caulking/concrete for leachable PCBs via the Toxicity Characteristic Leaching Procedure (per 761.62)

4. Leachable PCB limit: 10 micrograms/liter

5. Material not accepted at Turnkey

<table>
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<tr>
<th>Total PCBs</th>
<th>TCLP PCBs</th>
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<tbody>
<tr>
<td>µg/kg</td>
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<td>17,800,000</td>
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<tr>
<td>155,000</td>
<td>0.0155</td>
</tr>
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</table>
Concrete Building Panel Abatement:

- After concrete panels were removed, bead of caulking observed along the bottom of the panel and underlying concrete pad
- PCBs in caulking at 3.78 to 8.31 mg/kg – managed as Excluded PCB Product
- PCBs in underlying concrete < 1.5 mg/kg – managed as construction debris
- 550 tons of concrete shipped to Wayne Disposal in Belleville, MI (now part of US Ecology)
Soil Removal:

- After concrete panels were removed, soils/asphalt around perimeter of building excavated
- 190 tons of soil/asphalt shipped to Wayne Disposal in Belleville, MI (now part of US Ecology) as PCB Remediation Waste
HOTEL REDEVELOPMENT

Soil Sampling:

- 62 soil samples collected from limits of excavation; 3 samples of concrete collected following discovery of underground concrete foundations
- PCBs not detected above 0.6 mg/kg
- Permanent Solution Statement (PSS) submitted to MassDEP
HOTEL REDEVELOPMENT
RESIDENTIAL REDEVELOPMENT

Background Information:

- Formerly occupied by the Westborough State Hospital
- 43 structures of various sizes, construction and condition
- Originally developed as Lyman School for Boys in 1848
- Westborough Insane Asylum in 1948, renamed Westborough State Hospital
- Most structures built between 1848 and 1910; later additions in 1930s and 1960s
Background Information:

- HMI completed in 2016 on behalf of Town
- HMI did not include PCBs in building materials
- The Daniel Building (Building 1) and the Hennessey Building (Building 2) were constructed in 1967
- Concern for PCBs in building materials

RESIDENTIAL REDEVELOPMENT
Supplemental HMI:

- Supplemental HMI completed in 2018 for developer
- PCBs detected in samples of exterior caulking from building seams, windows, vents and doorways up to 129,000 mg/kg (12.9%)
- Primarily Arcolor 1254 with lesser amounts of Aroclor 1242

RESIDENTIAL REDEVELOPMENT
Background Information:

- Due to elevated PCB concentrations in exterior caulking, soil samples collected from perimeter of Building 2.
- PCBs detected in soil samples: 0.1 to 11.6 mg/kg.
- TCLP analysis of caulking/substrate – leachable PCBs at 15.1 and 14.7 µg/l.
The source of PCBs in shallow soil is leaching of PCBs from PCB-containing exterior caulking associated with weathering processes.

PCBs have not migrated significant distances from the perimeter of the building foundations. The migration of PCBs in soil is anticipated to be approximately 1.5 feet bgs vertically and 1.5 feet laterally.
Release Abatement Measure (RAM) Plan:

- Excavate PCB-impacted soil located at the perimeter of the Buildings 1 and 2 such that the concentrations of PCBs in these media are reduced to less than 1 mg/kg, the Method 1 S-1 soil standard provided in the MCP.
- Conduct RAM in accordance with Performance-Based Disposal regulations and manage soil as PCB Remediation Waste.
RAM Plan:

- RAM proposed excavation of approximately 2,640 linear feet of soil around perimeters of Buildings 1 and 2.
- Ransom proposed use of the Incremental Sampling Method (ISM) to collect soil samples for confirmatory PCB analysis.
WHAT IS ISM?

- A structured field sampling and laboratory processing and sub-sampling protocol
- Designed to address contaminant heterogeneity by collection of many increments over a site-specific Decision Unit (DU)
WHAT IS ISM?

1. Collection of many increments (30-100)
2. Each particle has an equal chance of being selected
3. Particle size reduction
4. Large sample volume

Result is an estimate of the mean concentration in the Decision Unit
ISM IMPLEMENTATION

1. More increments (30-100)
2. More field time per sample
3. Larger sample volume (up to 2 kg)
4. Additional laboratory preparation (and specialized equipment) = longer turnaround times
   a. Size reduction (filtering)
   b. Drying
   c. Sub-sampling
   d. VOCs sampling
RESIDENTIAL REDEVELOPMENT

Soil Removal/Post-Excavation Sampling

- Approximately 300 tons of PCB-contaminated soil was transported off-site to Wayne Disposal in Belleville, MI (now part of US Ecology) as PCB Remediation Waste

- 17 DUs were established:
  - Four exterior walls of each building
  - Interior courtyards
  - Walls of connecting hallway
  - Expansion joint
  - Northwest corner
  - Southern hallway
Soil Sampling:

- 54 soil samples collected from DUs ("initial" samples, replicates, and blind duplicates)
- Each sample consisted of 80 increments
- Samples to Eurofins TestAmerica (North Canton, OH) for processing and PCB analysis

RESIDENTIAL REDEVELOPMENT
Ransom calculated the average concentrations of PCBs for each DU (i.e., exposure point concentrations/EPCs)

- PCB EPCs did not exceed 1 mg/kg
- PSS without conditions was filed with MassDEP in December 2019

### Post-Excavation Soil Data:

<table>
<thead>
<tr>
<th>DU</th>
<th>Average Concentration (mg/kg)</th>
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<tbody>
<tr>
<td>DU1</td>
<td>0.29</td>
</tr>
<tr>
<td>DU2</td>
<td>0.33</td>
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<tr>
<td>DU3</td>
<td>0.26</td>
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<td>0.49</td>
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<td>DU5</td>
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<td>DU6</td>
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<td>DU7</td>
<td>0.71</td>
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<tr>
<td>DU8</td>
<td>0.55</td>
</tr>
<tr>
<td>DU9</td>
<td>0.43</td>
</tr>
<tr>
<td>DU10</td>
<td>0.29</td>
</tr>
<tr>
<td>DU50</td>
<td>0.18</td>
</tr>
<tr>
<td>DU51</td>
<td>0.26</td>
</tr>
<tr>
<td>DU52</td>
<td>0.43</td>
</tr>
<tr>
<td>DU53</td>
<td>0.21</td>
</tr>
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<td>DU54</td>
<td>0.22</td>
</tr>
<tr>
<td>DU55</td>
<td>0.98</td>
</tr>
<tr>
<td>DU56</td>
<td>Not Detected (&lt;0.05)</td>
</tr>
</tbody>
</table>
RESIDENTIAL REDEVELOPMENT
QUESTIONS?

Timothy J. Snay, LSP, LEP
March 10, 2020
Tel-Electric Mill Street (Tel-Electric) Dam Removal and Housatonic River Restoration Project

Michael Martin

Project Manager
Tighe & Bond
EBC NH CHAPTER – TEL-ELECTRIC MILL STREET DAM REMOVAL AND HOUSATONIC RIVER RESTORATION PROJECT

Michael Martin, Project Manager
PRESENTATION TOPICS

• Site Background

• Project Overview

• Sediment Management Overview

• TSCA Risk Based Disposal Approval Process

• Project Update
PROJECT TEAM

Pittsfield, MA
Massachusetts Department of Fish and Game
Division of Ecological Restoration
Invested in Nature and Community

MILONE & MACBROOM

Tighe & Bond

SumCo
ECO-CONTRACTING
SITE ACCESS

EVERSOURCE

The Berkshire Eagle
CONCEPTUAL SITE MODEL

• Constructed Early 1900s
• 36.5 Sq Mile Upstream Urban Watershed
• Contaminated Shallow Sediment Overlying Till
• Numerous Upstream Point Sources
• Existing Infrastructure in Project Area
PROJECT OBJECTIVES

• Removal of Dam, Spillway, Bypass Flume and Low Flow and Secondary Outlets

• Bank Stabilization and River Bed Grade Control Structures

• Installation of Scour Controls for Infrastructure Protection

• Excavation of 10,000 CY of Sediment
PROJECT TIMELINE

October 2019 - Dam Removal Begins
SEDIMENT MANAGEMENT OVERVIEW

- 4,000 CY Contaminated Sediment with Typical Urban Constituents and Low Level PCBs (0.5 mg/kg to <10 mg/kg)
- 6,000 CY of “Clean” Underlying Glacial Till (<0.1 mg/kg PCBs)
1M DOLLAR SEDIMENT MANAGEMENT QUESTION

- Upstream Sediment w/ PCBs Ranging from 60 – 8,900 PPM
- Sediment Classified as PCB Remediation Waste
- Performance Based Disposal or Risk Based Disposal (2.2M vs 700K)
RISK BASED DISPOSAL PLAN - CHALLENGES

• TSCA Approved Sampling Plan

  – Project Area of ~ 40,000 SF (1,200 Samples Based on 10’ X 10’ Grids)
  – Sampling Conducted within River Bed Between March and July 2019
  – Delineating Contaminated and Clean Till Interface
  – Oct 2019 Construction Start Date (Expedited EPA Approval Process)
RISK BASED DISPOSAL PLAN – HOW DID WE GET THERE?

- Early Stakeholder Meetings with Project Team and EPA
  - Negotiate a Reduced Characterization Sampling Plan (111 Samples / 42 Boring Locations)
  - Characterization of Dam Materials During Demolition
  - Established Confirmatory Sampling Plan
  - Establish a <1 ppm TSCA Remediation Goal
City of Pittsfield
Attn: James McGarth, Manager
Park, Open Space, and Natural Resource Program
Community Development
70 Allen Street
Pittsfield, Massachusetts 01201

Re: PCB Disposal Approval under 40 CFR §§ 761.61(a) and (e)
Mill Street (Tel-Electric) Dam Removal Project
Pittsfield, Massachusetts

Dear Mr. McGarth:

This is in response to the Notification1 by the City of Pittsfield ("the City") to address PCB-contaminated sediment that will be generated as part of the Mill Street (Tel-Electric) dam removal project. The project area includes an approximately 400 feet-long stretch of the West Branch of the Hoosac River, extending upstream from the Tel-Electric Dam to Railroad Bridge #3 (hereinafter "the Site").

The City is proposing to dispose of PCB-contaminated sediment generated during the dam removal project as less than "<5" 50 parts per million ("ppm"). PCB remediation waste in accordance with 40 CFR § 761.61(a)(5)(i)(D)(ii). Following removal of these sediments, sampling will be conducted to confirm that PCB concentrations are < 1 ppm in the material (e.g., till) underlying the sediment that will also require removal and disposal during the project. Samples from the upstream face of the dam structure will be collected to confirm PCB concentrations for disposal. Wastes containing PCBs < 1 ppm will be disposed in accordance with the state regulations.

Based on the EPA's review, the Notification meets the requirements under 40 CFR § 761.61(a), with exception of the sediment sampling requirements for disposal. However, of the over 100 sediment samples collected in 2019, the highest reported PCB concentration was 10.2 ppm.

1 The Notification was prepared by Tighe&Bond on behalf of the City to satisfy the requirements under 40 CFR §§ 761.61(a) and (e). Information was submitted on February 8, 2019 (Preliminary Sediment Sampling and Management Plan); May 3, 2019 (Supplemental Information and Field Sampling Results); July 2019 (Sediment Management Plan/Risk-Based Disposal Plan); and August 14, 2019 (Response to EPA Comments). These submittals shall be referred to as the "Notification."
PROJECT STATUS UPDATE

• Completed to Date:
  – Disposal of ~ 6,400 Tons of Contaminated Sediment at Casella’s Clinton County LF
  – 11 Confirmatory PCB Samples Collected from Top Of Till Did Not Identify PCBs Above RLs
  – Building Assessment Did Not Identify PCBs in Dam Materials
  – Till Characterization Sampling Confirmed Material Consistent with MassDEP’s Published Natural Soil Concentrations
Moderated Discussion

Moderator: Michael Dacey, GeoInsight

Panelists:
• Todd Bridgeo, Weston & Sampson
• Michael Martin, Tighe & Bond
• Timothy Snay, Ransom Consulting, LLC
• Susan Sylvester, Absolute Resources Associates