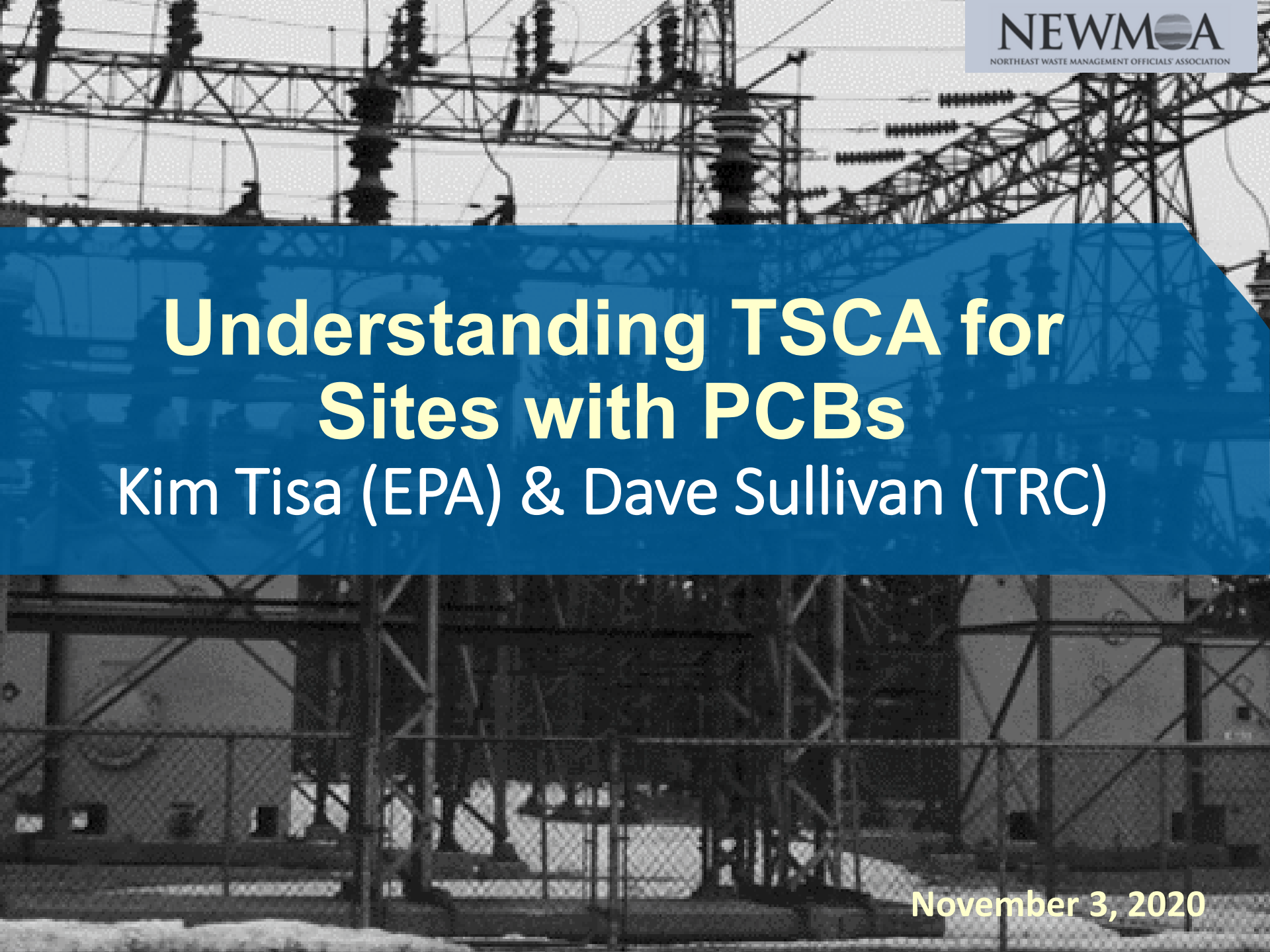

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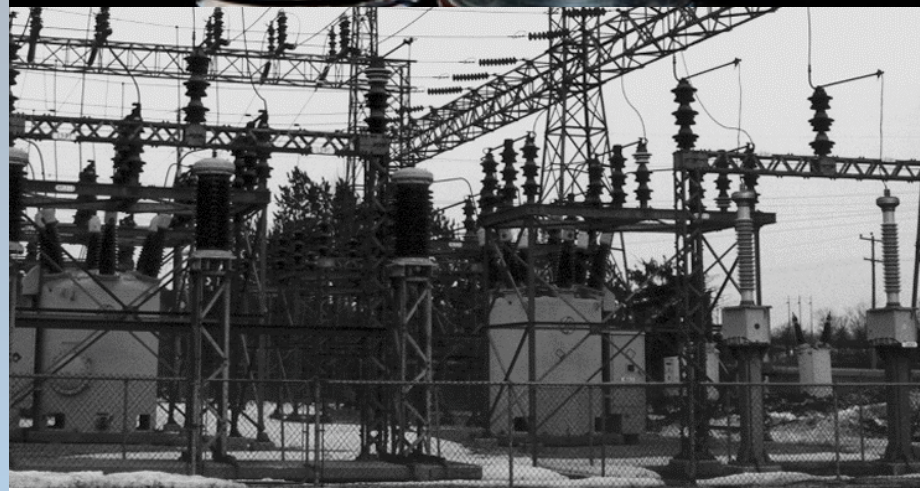
Understanding TSCA for Sites with PCBs

Kim Tisa (EPA) & Dave Sullivan (TRC)

November 3, 2020

Agenda

- Introduction/General Regulatory Provisions
- Self-Implementing Cleanup and Disposal
- Performance-Based Disposal
- Risk-Based Disposal
- Semi-Hypothetical Examples
- Subpart Q and Soxhlet Extraction
- Reflections on the Regulations



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Brief Regulatory History

- **1976 -** Due to PCB Toxicity and Environmental Persistence Concerns, Congress enacted Section 6(e) of the Toxic Substances Control Act (TSCA)

- **1979 -** PCBs banned except for “totally enclosed uses”, such as transformers, capacitors, vacuum pumps and hydraulic fluids (a.k.a., authorized uses)

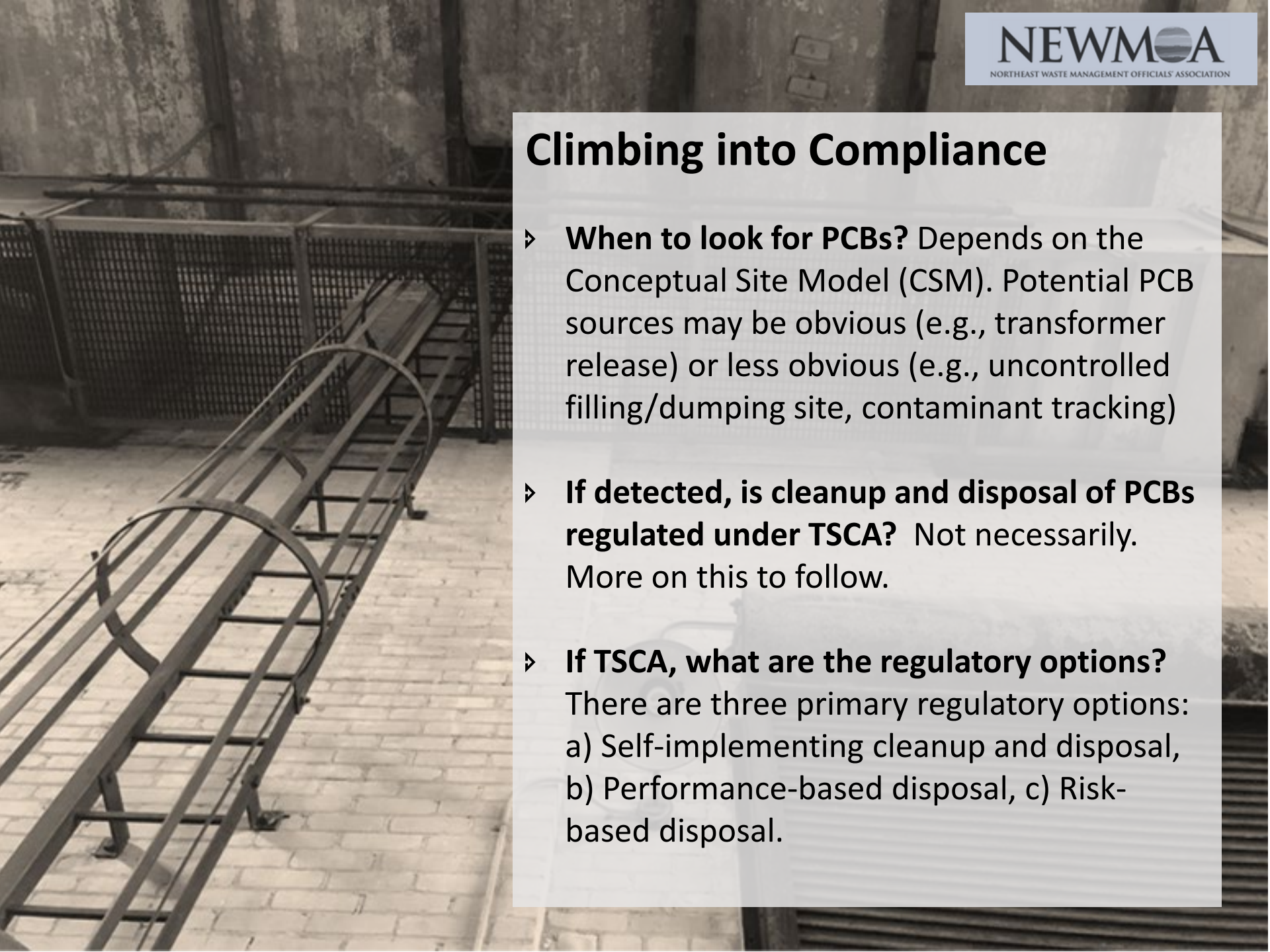
- **1998 -** PCB Disposal Amendments (a.k.a., the Mega Rule)

General Regulatory Provisions

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

- **Remedial/Disposal Frameworks -** Governs owners, operators, and/or persons conducting cleanup of PCB-contaminated property where the PCB contamination exceeds allowable concentrations under the regulations

- **Not Delegated -** TSCA authority is not delegated to the states; therefore both TSCA and state regulations will apply



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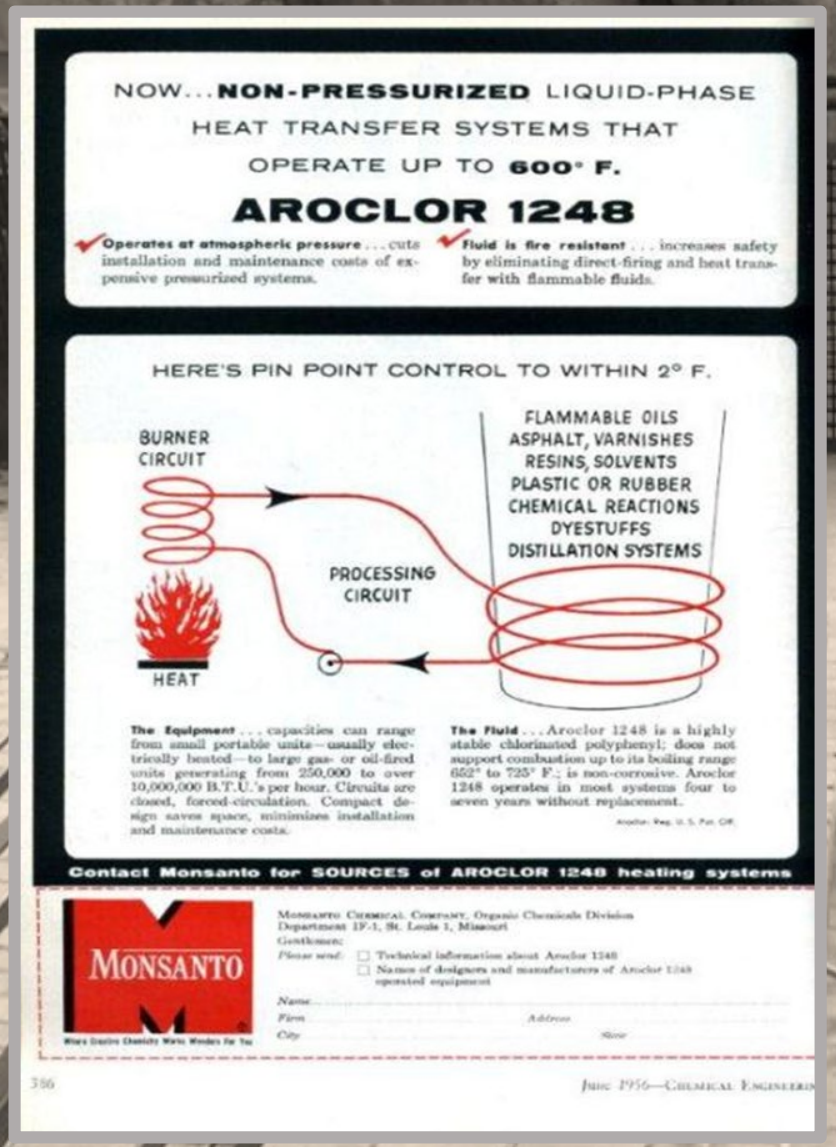
Climbing into Compliance

- **When to look for PCBs?** Depends on the Conceptual Site Model (CSM). Potential PCB sources may be obvious (e.g., transformer release) or less obvious (e.g., uncontrolled filling/dumping site, contaminant tracking)

- **If detected, is cleanup and disposal of PCBs regulated under TSCA?** Not necessarily. More on this to follow.

- **If TSCA, what are the regulatory options?** There are three primary regulatory options: a) Self-implementing cleanup and disposal, b) Performance-based disposal, c) Risk-based disposal.



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Contact Monsanto for SOURCES of AROCLOR 1248 heating systems

MONSANTO

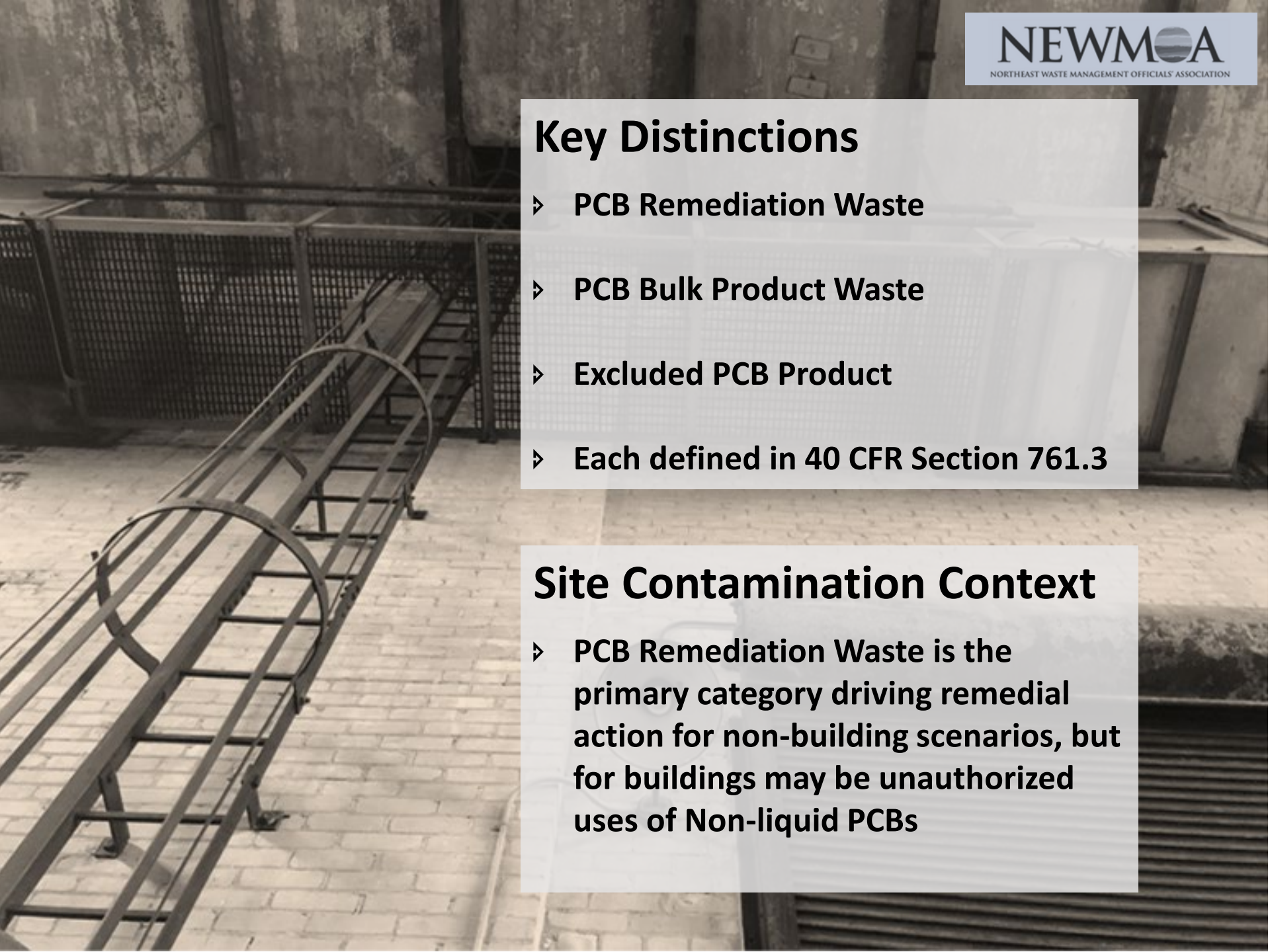
Monsanto Chemical Company, Organic Chemicals Division
Department IP-1, St. Louis 1, Missouri
Gentlemen:
Please send: ☐ Technical information about Aroclor 1248
☐ Names of designers and manufacturers of Aroclor 1248 operated equipment
Name
Firm — Address
City — State

386 — June 1956—Chemical Engineering

Conceptual Site Model Considerations

- Transformers
- Capacitors
- Hydraulic fluids
- Oil-based paints
- Fluorescent light ballasts
- Lubricating & cutting oils
- Floor finishes
- Fire retardants
- Thermal insulation materials
- Caulk/sealants/waterproofing
- Coatings for wire/electrical gear
- Carbonless copy paper
- Inks and dyes
- Adhesives/mastics
- Auto shredding fluff
- Waste oil

...and more...



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Key Distinctions

- PCB Remediation Waste
- PCB Bulk Product Waste
- Excluded PCB Product
- Each defined in 40 CFR Section 761.3

Site Contamination Context

- PCB Remediation Waste is the primary category driving remedial action for non-building scenarios, but for buildings may be unauthorized uses of Non-liquid PCBs

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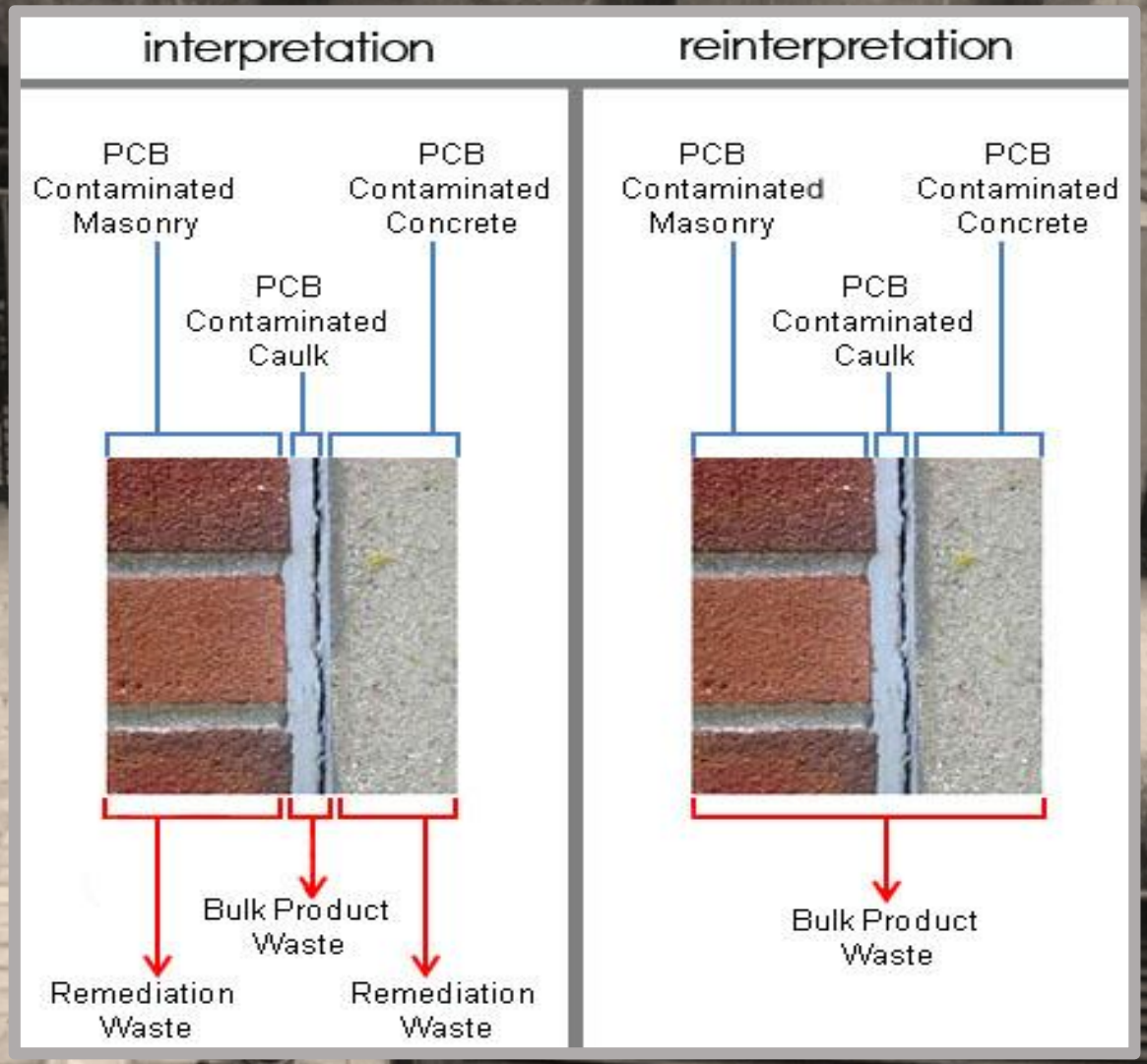

https://www.epa.gov/pcbs/polychlorinated-biphenyl-pcb-guidance-reinterpretation

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Game on! PCB Remediation Waste

As Found Concentration

- ≥ 50 PPM Total PCBs
- Pre-April 18, 1978 Disposal

Unauthorized Source

- Any PCB concentration As Found

Source Concentration

- ≥ 500 PPM Total PCB Source
- Beginning April 18, 1978
- Any PCB concentration As Found

- ≥ 50 PPM Total PCBs
- Beginning July 2, 1979
- Any PCB concentration As Found

Be careful of data dilution...

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But wait...

Doesn't 40 CFR 761.50(b)(3)(i)(A) Cut Me Some Slack?

Sites containing these wastes are presumed not to present an unreasonable risk of injury to health or the environment from exposure to PCBs at the site.

Factors to be considered for no unreasonable risk determination

- **Location, PCB concentration, site use, receptors**

Recommendations for engaging EPA

- **Early communication to avoid project delay**
- **EPA streamlining tool**

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The Three Options for Site Remediation

Self-Implementing cleanup and disposal (a.k.a., 761.61(a))

- Highly prescriptive with a stipulated review period and established clean-up standards, but only for soil and bulk materials (e.g., concrete, asphalt, brick)

Performance-based disposal (a.k.a., 761.61(b))

- Requires no EPA approval for removal/disposal, allows for fast action, disposal options are limited and conservative
- Cleanup to 1 ppm, but if no reached further work may be required per 61(a) or 61(c)

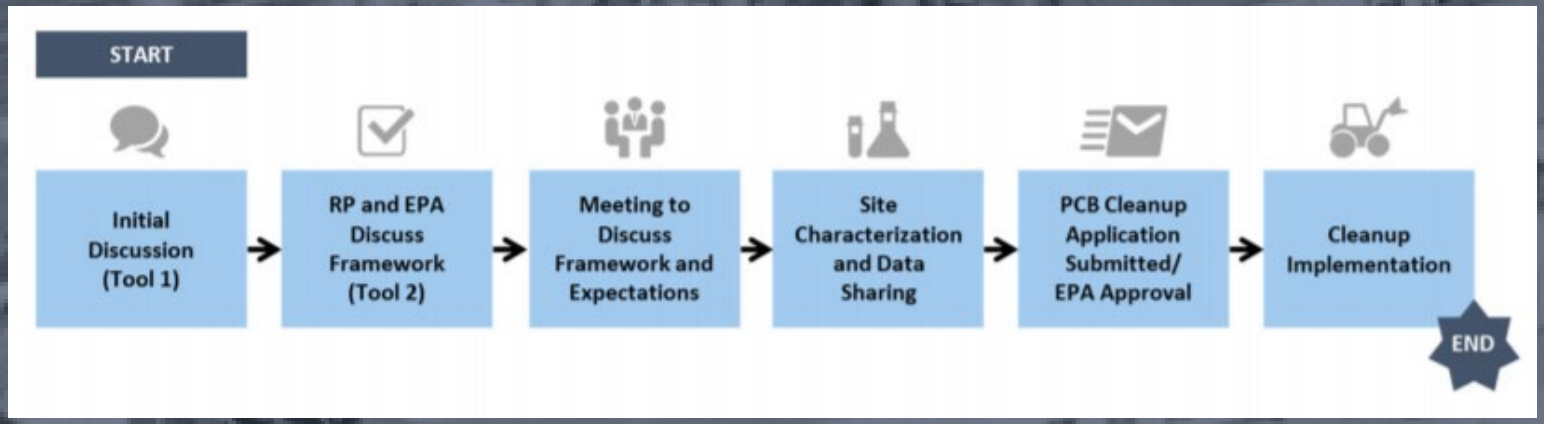
Risk-based disposal (a.k.a., 761.61(c))

- Site specific approach applicable to all impacted media
- Utilize EPA streamlining tool any time employing 61(c)

EPA Streamlining Tool

Developed in Region 9

- Outgrowth of an October 2014 EPA Region 9 Lean Six Sigma event
- Published May 2017



Bottom Line

- Lays out a collaborative process between EPA and the Responsible Party
- Encourages early communication, facilitates agreement upon site goals and objectives, and encourages elevation of issues and concerns.

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Self-Implementing Cleanup and Disposal (a.k.a., 761.61(a))

Overview:

- **Best Fit:** Small-moderate sized sites (< 1-acre)
- **Applicability:** Soil, building, and bulk materials only
- **Notification & Certification:** EPA, state, local
- **EPA Review Timeframe:** 30 days (but only if *ALL* procedural elements are followed)

What ifs:

- **Missing information:** Notification is incomplete (761.61(a)(3)(ii))
- **Doesn't check all the boxes:** Procedural requirements not met
- **Flexibility:** Emergency Waivers (761.61(a)(3)(iii))

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Self-Implementing (continued)

Prescriptive Approach for Sampling

- ⇨ Must comply with ALL sampling and extraction/analytical procedures

Characterization Sampling

- ⇨ In-situ (as found) sampling with no compositing
- ⇨ Subpart N – 3-meter (10 foot) N-S grid, but Subpart O if segregating for disposal

Verification Sampling

- ⇨ Subpart O – 1.5-meter (5 foot) grid
- ⇨ Rubric for determining minimum number of samples
- ⇨ Strictly speaking, sample core intervals should be no more than 7.5-centimeters (3 inches)
- ⇨ Porous surfaces – Region 1 Porous Surfaces SOP
- ⇨ Compositing allowed per specific rules

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Self-Implementing (continued)

761.61(a) REMEDY AVENUES CHEAT SHEET

PCB Concentration in Soil (parts per million)	Unrestricted Site Use	Deed Restriction*	Cap**	Fence***
A.) High Occupancy Area (> 6.7 hours/week)				
≤ 1	Yes	No	No	No
> 1 but ≤ 10	No	Yes	Yes	No
B.) Low Occupancy Area (< 6.7 hours/week)				
≤ 25	No	Yes	No	No
> 25 but ≤ 50	No	Yes	No	Yes
> 25 but ≤ 100	No	Yes	Yes	No

* When cleanup includes a cap or fence, a deed restriction will be used.

** A cap shall consist of any of the following: concrete or asphalt with a minimum thickness of 6-inches, or soil with a minimum thickness of 10-inches and:

- Permeability ≤ 1.0 x 10(-7) cm/sec
- 30 percent passing No. 200 Sieve
- Liquid Limit > 30
- Plasticity Index > 15

*** Fence will be marked with the PCB ML symbol

Self-Implementing (continued)

Verification Sampling Requirements

⇨ Detailed and prescriptive (see 761.61(a)(6))

Important Elements of Clean-up Verification		
Number of samples	Subpart O spacing (5 x 5)	Composite sampling ▹ 9 sample maximum ▹ Point source approach ▹ Non-point source approach
Depths and locations	Extraction and analysis	

Cleanup continues until cleanup levels are reached at each location

⇨ Exposure point calculations not considered

Composite sampling can be complex

⇨ Consultation with Regional PCB Coordinator recommended

Self-Implementing (continued)

Disposal of PCB Remediation Waste

- ⇨ Liquids (see 761.60(a) and 761.79)

- ⇨ ≥ 50 ppm (dewatered waste)
  - ✓ Existing TSCA facilities
  - ✓ RCRA hazardous waste landfill

- ⇨ < 50 PPM (dewatered waste)
  - ✓ Existing TSCA facilities
  - ✓ RCRA hazardous waste landfill
  - ✓ State approved solid waste landfill

Self-Implementing (continued)

Documentation

⇨ Planning vs. Closure

Planning – EPA (see 761.61(a)(3) & EPA SIP checklist)

- Cover letter
- Site background/history
- Nature of contamination
- SOP Summary
- Site map
- Copies of analytical
- Proposed technology & approach
- Certification
- QA/QC Plan
- If cap, provide design and x-sections

Closure - EPA

- Completion Report
- Certification for recording of deed restriction, if applicable

Integration with State Program

- Same content can be integrated into state program plans & closures

Performance-Based Disposal (a.k.a., 761.61(b))

- **Notification to EPA –** Not required for removal/disposal of PCB remediation waste
- **Removal Objective –** Less than 1 ppm per Subpart O (if not, perform remainder by Self-Implementing (61(a)) or Risk-based (61(c))
- **Disposal -** TSCA approved facility (some special provisions can apply to dredged sediments)
- **Documentation of Cleanup -** Kept on file

Performance-Based Disposal (a.k.a., 761.61(b))

Documentation

⇨ Planning vs. Closure

Planning - EPA

- No specific plan required for submittal to EPA
- Only specifically details disposal requirements
- May consult with EPA on objectives for the proposed work

Closure - EPA

- No closure documentation required for submittal to EPA; however, EPA requires that all information be retained ≥ 5 years (761.125(c)(5))

Integration with State Program

- Follow state program - dictates where PCBs are reportable at the state level

Risk-Based Disposal Approval (a.k.a., 761.61(c))

- **Typical Use –** Complex or large sites and all media types, including sediment and groundwater
- **EPA Involvement –**
  - Requires written EPA approval
  - EPA may engage contractor support for highly technical sites
  - Review period not stipulated and can be extensive
- **Notification –** A public notification process may be required
- **Risk Assessment –** State and Federal programs will likely be different (especially ecological risk)
- **Other Use –** Avenue for EPA to approve reasonable modifications to Self-Implementing procedures (a.k.a., blended approval)

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Site Remediation Buyer's Guide

Program	Flexibility	Timing	Cost[2]
Self-Implementing (61(a))	**Moderate**[1]	**Moderate**	**Planning** – $ **Implementation** – $ to $$ **Disposal** – $ to $$$
Performance-based (61(b))	**Limited/Low**	**Advantageous**	**Planning** – $ Implementation – $ Disposal – $$$$[3]
Risk-based disposal (61(c))[4]	**Advantageous**	**Long**	**Planning** – $$ to $$$$ **Implementation** – $$$ to $$$$ **Disposal** – $ to $$$

1 – Departures from SIP, if allowed, lead to blended approval. 30-day approval not applicable in this case
2 – Highly project/site specific
3 – Limited/expensive disposal options
4 – Not including blended approval discretion exercised for SIP modifications/departures

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Risk-Based Disposal Approval (a.k.a., 761.61(c))

Documentation

⇨ Planning vs. Closure

Planning - EPA

- Cover letter
- Site background/history
- Nature of contamination
- SOP Summary
- Site map x-referenced to sample IDs
- Copies of analytical
- Proposed technology & approach with contingency plan
- Evaluation of cleanup alternatives
- Human health and ecological risk assessments
- Certification

Planning (continued)

- QA/QC Plan
- Potential for 30-day public notice/comment
- If cap, provide design, x-sections, and deed restriction
- EPA Streamlining Toolbox (FAST)

Closure - EPA

- Completion Report and FAM
- As-builts of caps and deed restriction, as applicable

Integrable with State Programs

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EXAMPLE 1 - Historically Filled Site (Soil Impacts Only)

Key Elements

- Activity pre-1978 fill activity over several decades
- Also developed pre-1978 without additional modification
- Large Areas (>30 acres)
- Other soil contaminants present (site is also in state program)
- Broad grid sampling program (50 foot) with vertical delineation
- Not associated with unauthorized use or other later spills
- One in-situ location ≥ 50 ppm PCBs in soil

Approach

- Self-Implementing Plan, including plan for advanced in-situ Subpart-O sampling
- Spot-removal integrated with state-level planning/remediation
- Blended 61(a)/61(c) approval
- Closure reporting integrated with state-level reporting

EXAMPLE 2 - Energy Facility with Complex Infrastructure

Key Elements

- Performance-based removal excavated soil to limits of safety
- Residual soil concentrations over 1 ppm Total PCBs

Approach

- Wrap-up remediation under Self-Implementing or Risk-Based Disposal Approval (a.k.a., 761.61(a) or 761.61(c))
- Supplemental delineation and cap installation

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EXAMPLE 3 - Impacted Wetland Sediments

Key Elements

- Wetland impacted by runoff/migration from PCB-impacted fill site
- Residual soil and sediment concentrations over 1 ppm Total PCBs

Approach

- Risk-Based Disposal Approval (a.k.a., 761.61(c))
- Harmonized EPA/state ecological risk assessment approach with site-specific toxicological testing to develop site specific clean up targets for wetland soil and sediment
- Hot spot removal and sub-aqueous capping for sediment contaminated over site-specific clean-up target

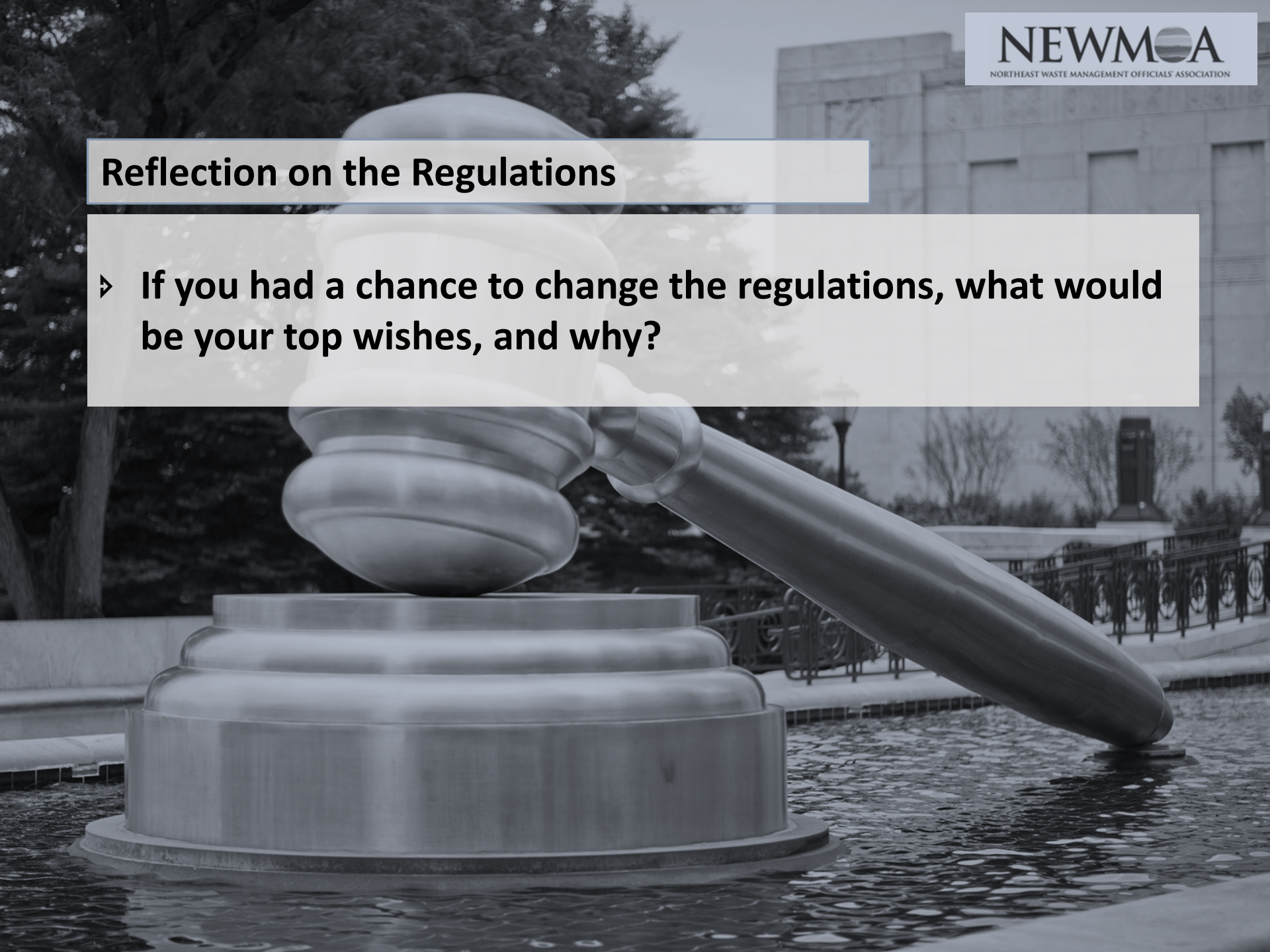
Note

- Upland managed per separate Risk-Based Disposal Approval (a.k.a., 761.61(c)) to integrate building and exposure barrier construction

Soxhlet Extraction and Subpart Q

Subpart Q Alternative Method: If an alternative method of extraction and/or analysis is/will be used, then any submitted plan must certify that a comparison study which meets or exceeds the requirements of Subpart Q has been completed prior to the verification sampling.

Regulatory changes under consideration: Potential addition of allowable extraction/analytical methods



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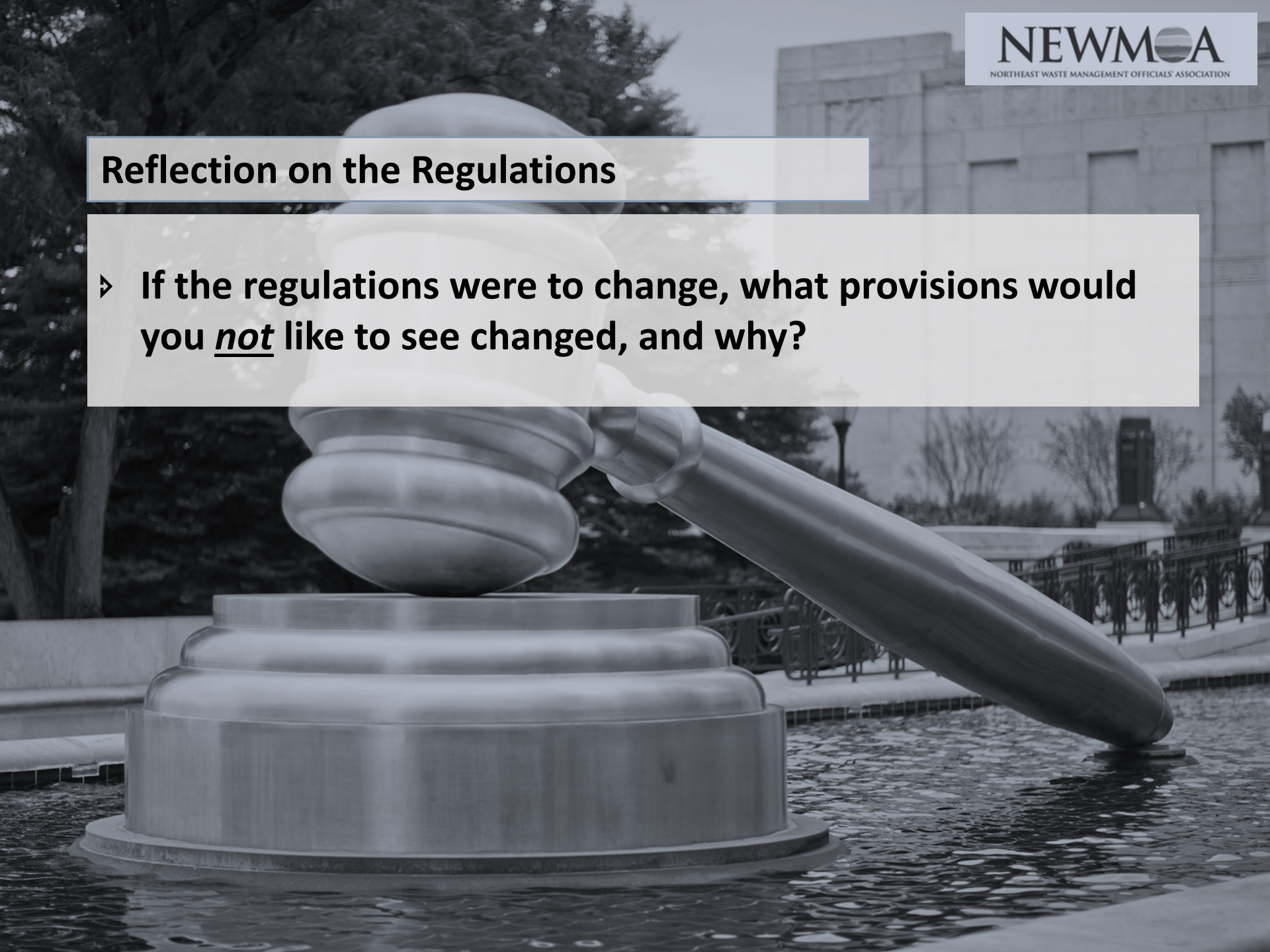
Reflection on the Regulations

- If you had a chance to change the regulations, what would be your top wishes, and why?



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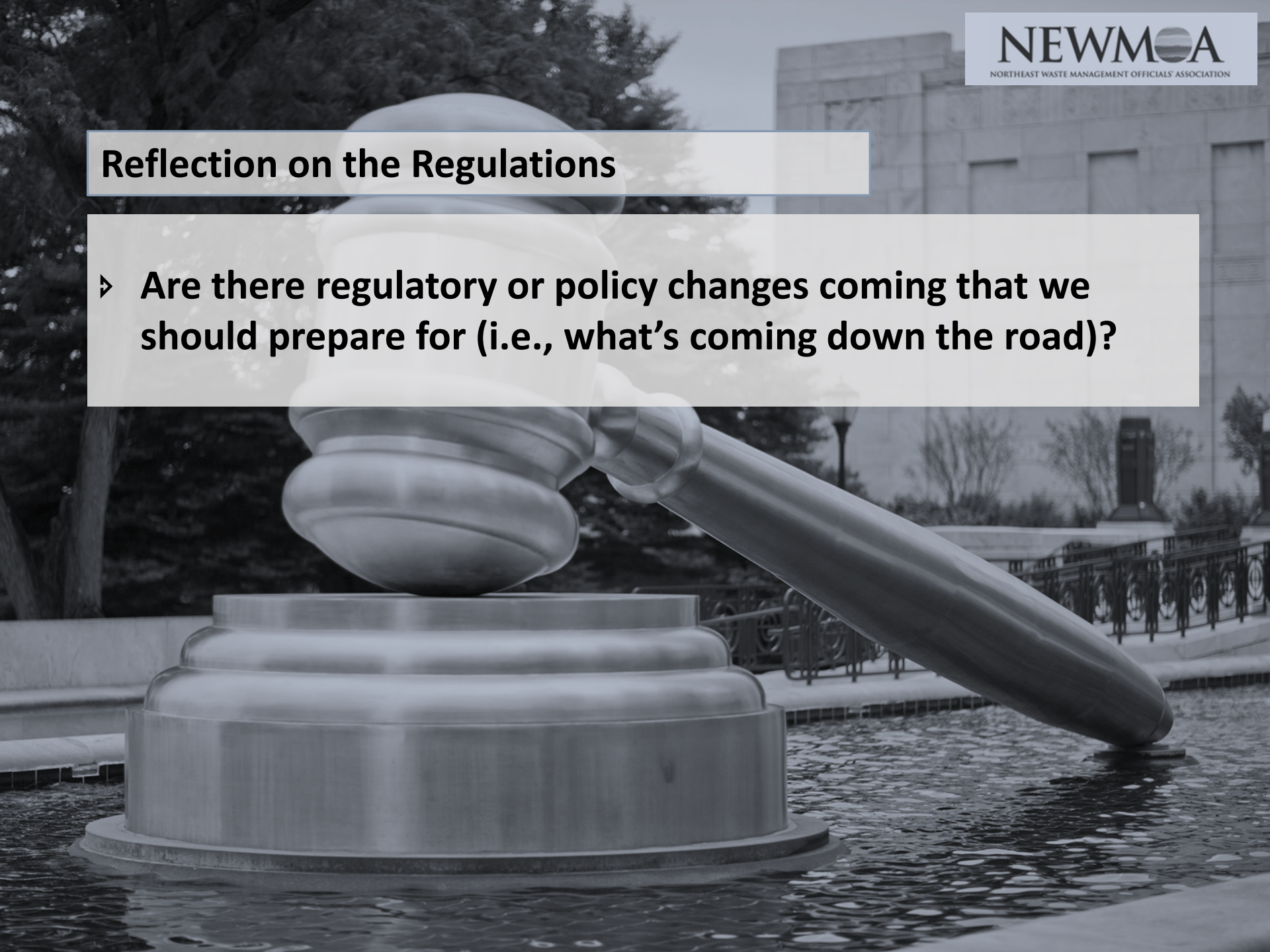
Reflection on the Regulations

- If the regulations were to change, what provisions would you ***not*** like to see changed, and why?



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Reflection on the Regulations

- Are there regulatory or policy changes coming that we should prepare for (i.e., what's coming down the road)?

Thank you for your time and attention!