PCBs in BUILDING MATERIALS

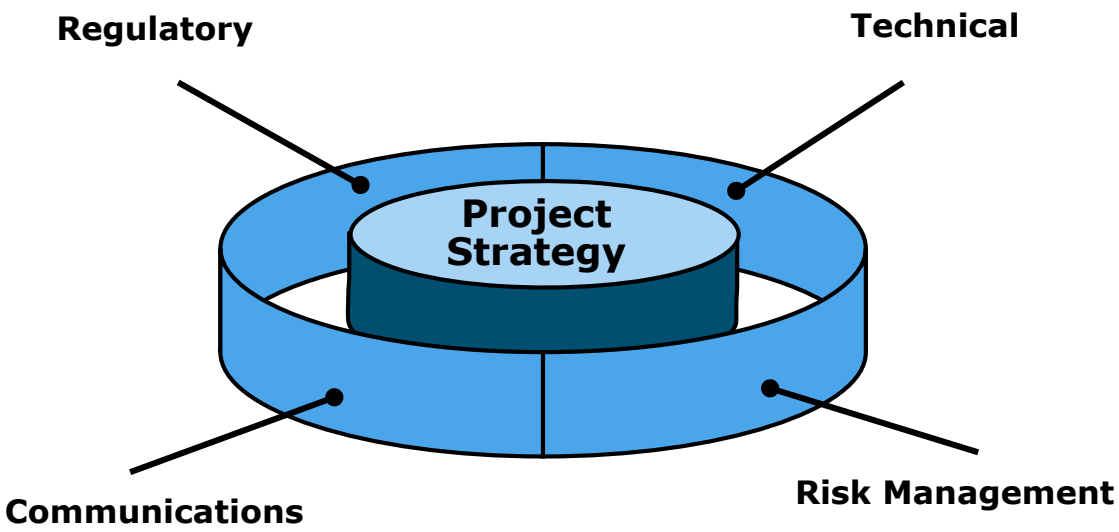
ERIC S. WOOD, PG, PHG, LSP
PRINCIPAL
RAMBOLL ENVIRON US CORPORATION

CTDEEP HAZARDOUS WASTE ADVISORY COMMITTEE
JUNE 16, 2016

RAMBOLL ENVIRON

KEY ELEMENTS FOR PROJECT SUCCESS

PCBs in Building Materials



PRESENTATION OUTLINE

PCBs in Building Materials

- ***Why*** **is this topic worth discussing now?**
- ***When*** **to consider investigating?**
- ***What*** **situations should trigger awareness?**
- ***Where*** **to investigate?**

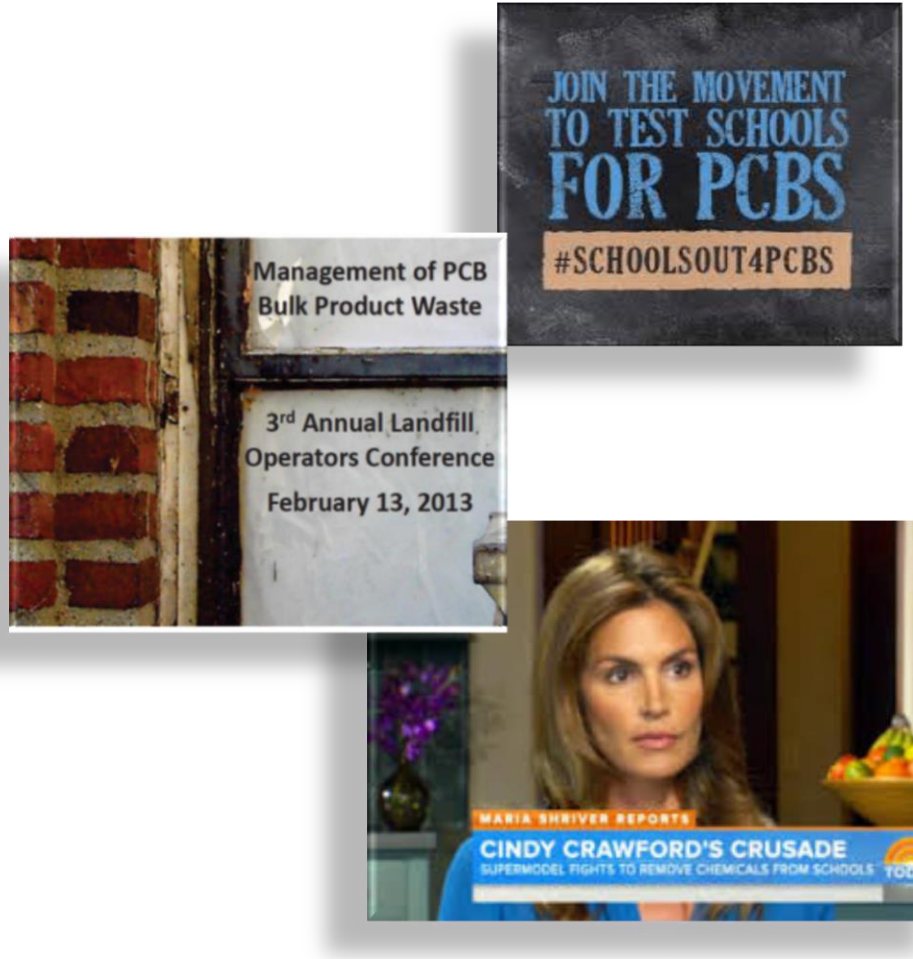
PRESENTATION OUTLINE

PCBs in Building Materials

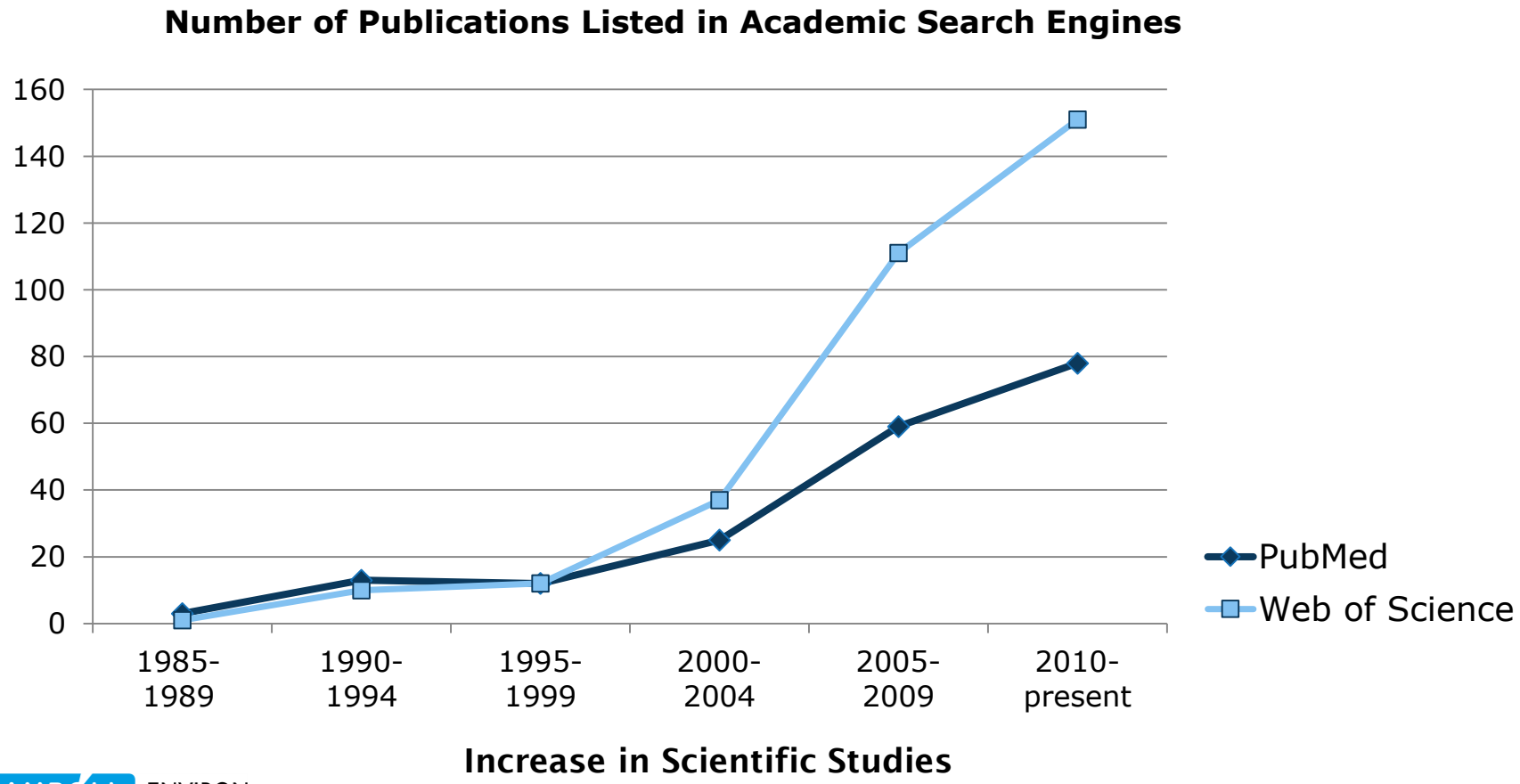
- ***How*** **to investigate?**
- ***How*** **to manage risks if PCBs are present?**
- ***What*** **are the key issues for a successful project?**

AWARENESS OF THIS ISSUE IS GROWING

- **Regulatory websites**
- **Technical conferences**
- **Press releases/TV**
  - High profile cases
- **Social media**
- **Disposal facilities**
- **Scientific research**



EXAMPLES OF GROWING AWARENESS



WHY DISCUSS NOW? THE RISKS!

- **Legal**
  - Regulatory compliance
    - ✓ Unauthorized use
    - ✓ Disposal requirements
  - Claims potential
    - ✓ Personal injury
    - ✓ Class action
    - ✓ Insurance?
- **Financial**
  - Project cost
  - Lost use of assets
  - Business interruption
  - Construction delays
- **Reputational risk**

WHEN TO CONSIDER INVESTIGATING?

The Age of the Building Materials is Relevant

- Construction or renovation from 1929–1979+

<u>Situations that should trigger awareness</u>:

- Renovations or demolitions
- Due diligence for acquisitions/divestitures
- Site assessments; Brownfields
- Property condition assessments

WHEN TO CONSIDER INVESTIGATING?

Situations that should trigger awareness:

- Liability valuation
  - Financial accruals
  - Asset Retirement Obligations (FAS 143/Acctg. Stds. Codification 410)
- Stakeholder concerns
  - Lease/mortgage obligations
  - Occupational health
  - Exposure potential
  - Owner/employer/employee/tenant/contractor/lender/other
- Crumbling/deteriorated building materials
- Old fluorescent light ballasts

WHAT TO CONSIDER INVESTIGATING?

Partial list:

- Caulk/glazing/joint compounds (primary source)
- Old fluorescent light ballasts (primary source)
- Paints
- Lacquers, varnishes
- Laminating adhesives, tapes, mastics
- Flame retardants
- Waterproofing coatings
- Sealants

WHERE TO CONSIDER INVESTIGATING?

Indoor and outdoor environments:

- Indoor sources
- Indoor media: air, surfaces
- Outdoor sources
- Outdoor media: soil, sediment, catch basins

HOW TO INVESTIGATE

Decide if, and how, you want to sample

- Direct (source) sampling
  - Evaluates sources first
- Indirect sampling – air samples (for volatilized PCBs); wipe samples (for PCBs in dust)
  - Evaluates exposure routes first
  - Opposite of common approach
- No sampling – PCBs assumed present

There can be significant risks in investigating – and not investigating – PCBs in building materials that should be carefully considered in forming an overall project strategy.

HOW TO INVESTIGATE?

- **Develop inspection and sampling plans**
- **Use proper procedures (regulations and policies)**
  - Sampling (location and collection requirements)
    - ✓ Characterization
    - ✓ Verification
  - Decontamination
  - Laboratory methods (including extraction)
  - Data validation
  - Communicate with CTDEEP and EPA Regional PCB Coordinators

HOW TO MANAGE RISKS IF PCBS ARE PRESENT?

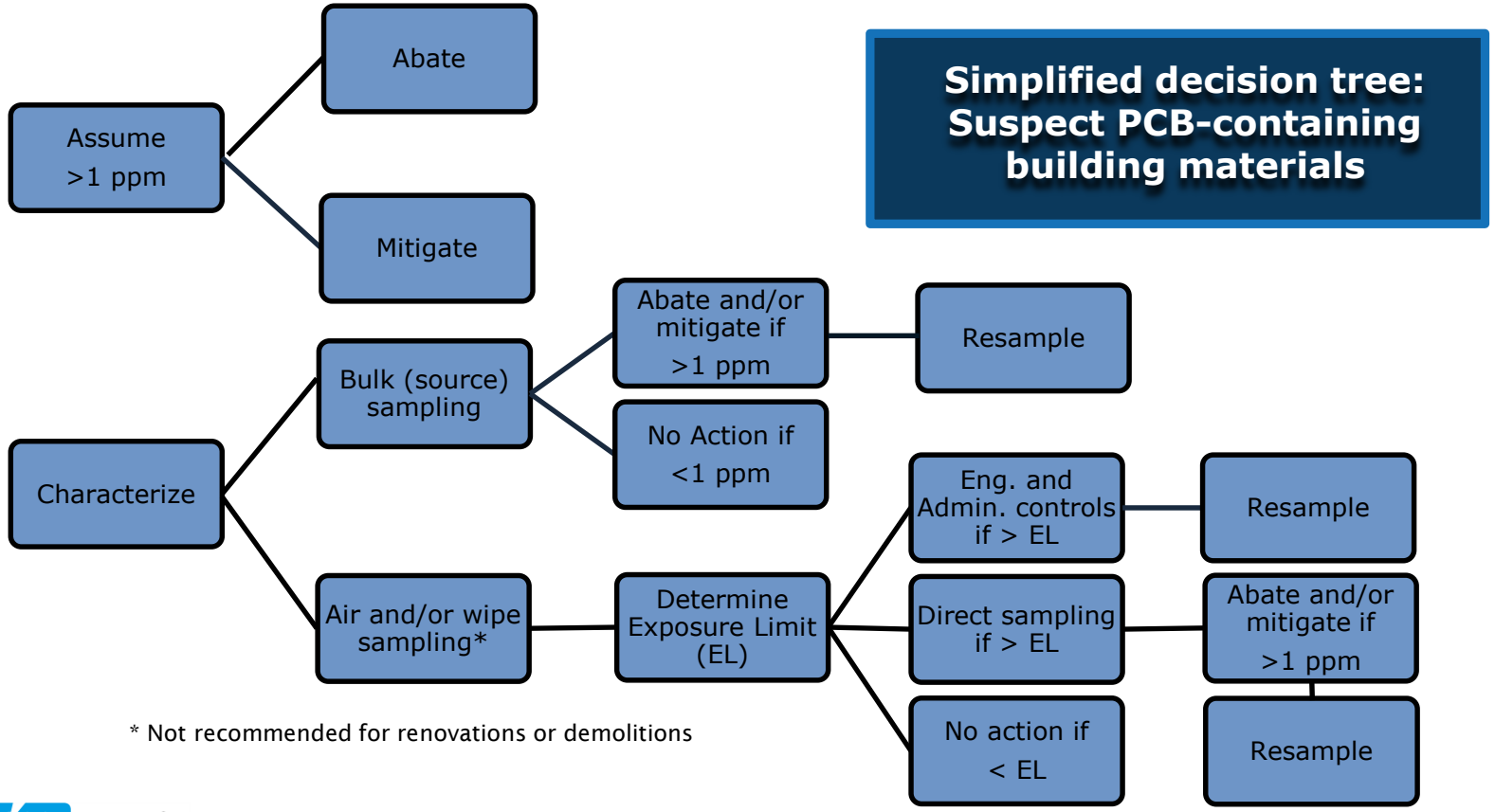
- **Know the CT and TSCA requirements for cleanup and disposal**
  - PCB bulk product waste
    - ✓ Solid waste landfills
    - ✓ Performance-based
    - ✓ Risk-based
  - PCB remediation waste
    - ✓ Self-implementing (prescriptive cleanup goals)
      - High vs. low occupancy areas
    - ✓ Performance-based
    - ✓ Risk-based

The various cleanup and disposal options in the regulations can have significant schedule, cost, and risk management considerations.

HOW TO MANAGE RISKS IF PCBS ARE PRESENT?

- **Source removal (examples)**
  - Bulk removal (caulk, porous materials)
  - Sandblasting (paint, concrete)
  - Scarification (concrete)
  - Sawcutting (concrete, caulk)
- **Mitigation (examples)**
  - Engineering controls
    - ✓ Encapsulation, physical barriers, ventilation
  - Administrative controls
    - ✓ Best management practices

AN EXAMPLE OF *HOW* TO INVESTIGATE?



SIGNIFICANT COST POTENTIAL FOR THESE PROJECTS

Not a lot of consistent data yet (caulk example)

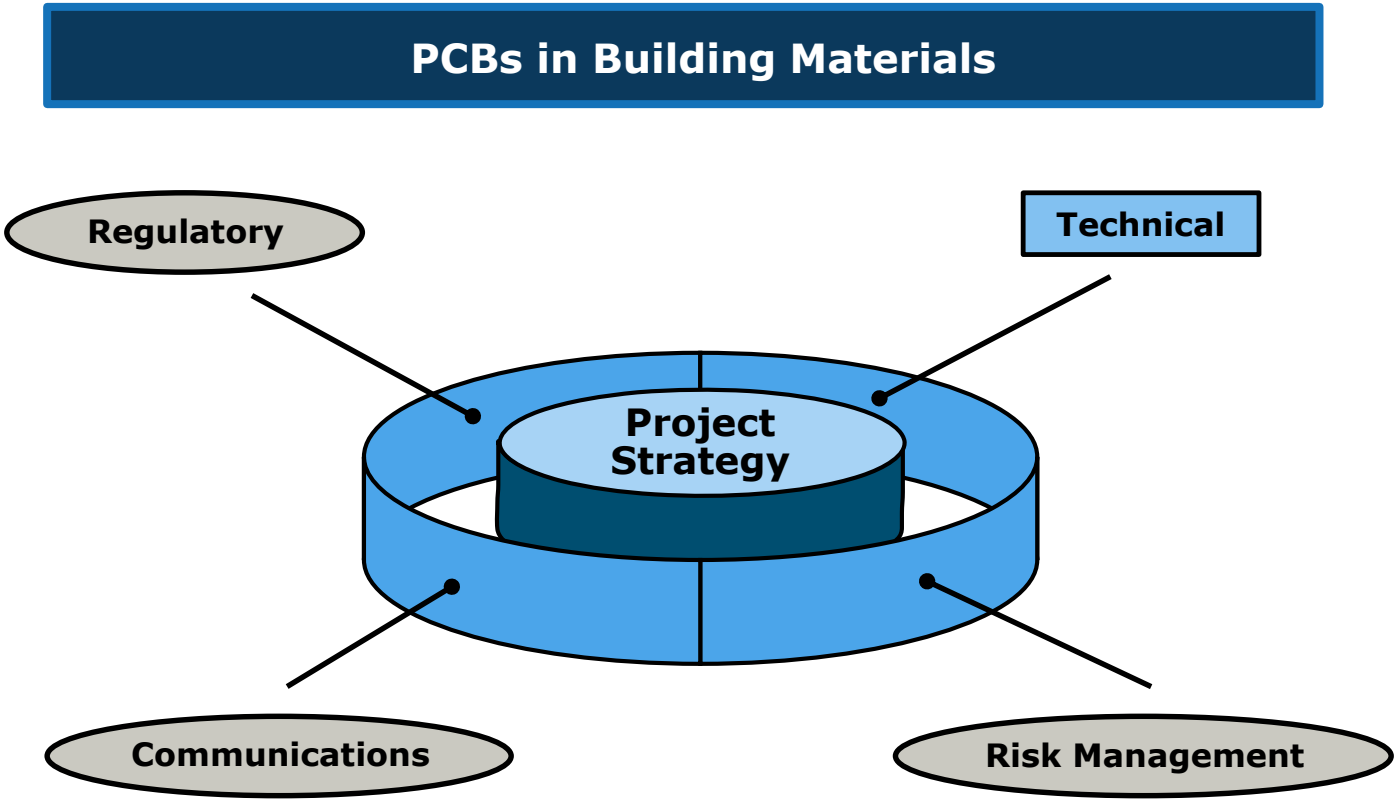
- 100's to 1,000's of samples (~$65–$130 per sample)
  - Characterization and verification
- Caulk removal w/ disposal (~$50–$170 per linear foot)
- Substrate removal (~$55-$120 per linear foot)
- Caulk & substrate repairs (~$50-$125 per linear foot)
- Encapsulation (~$55 per linear foot)
- Excludes other building materials, consultant & attorney fees

---

Total remediation costs (several MA and NYC schools):

~$3MM - $8MM per school

KEY ELEMENTS FOR PROJECT SUCCESS



KEY ISSUES TO FOCUS ON

- **Collaboration on strategy development**
  - Regulatory approach
  - Minimization of legal, financial, reputational risks
- **Risk communication planning and execution**
- **Stakeholder involvement**

KEY ISSUES TO FOCUS ON

KEY ISSUES TO FOCUS ON

- **Contractual considerations**
  - P&S, leases
- **Mortgage/lease notification obligations**
- **Business interruption**

SUMMARY

- **Growing awareness of the issue**
- **Significant legal, financial, and reputational risks**
- **PCBs can exist in multiple inside/outside locations**
- **Situations that should trigger awareness**
- **Engage subject matter experts**

  Legal, regulatory compliance, site investigation, human health/ecological risk assessment, remediation, construction, data validation, communications

SUMMARY

These projects demand a strategic plan which considers:

- Risks of investigating/not investigating
- Project cost and schedule
- Optional regulatory pathways available in some cases
- Characterization and verification approach
- Risk assessment/cleanup goals
- Remediation/mitigation methods
- Risk communication

A successful project requires integration of many key issues

FOR ADDITIONAL INFORMATION:

Eric S. Wood, PG, PHg, LSP
Principal

Ramboll Environ US Corporation
20 Custom House Street, Suite 800
Boston, MA 02110

3 Carlisle Road, Suite 210
Westford, MA 01886

Direct: 978-449-0343
Mobile: 603-770-5656
eswood@ramboll.com