Source Control in Portland Harbor

Regulatory Framework and Site-Specific Considerations

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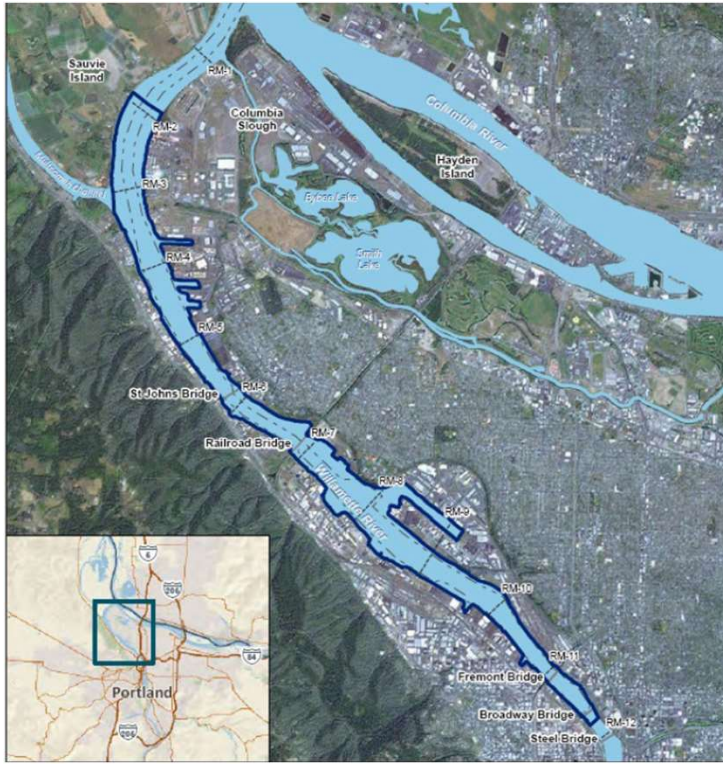
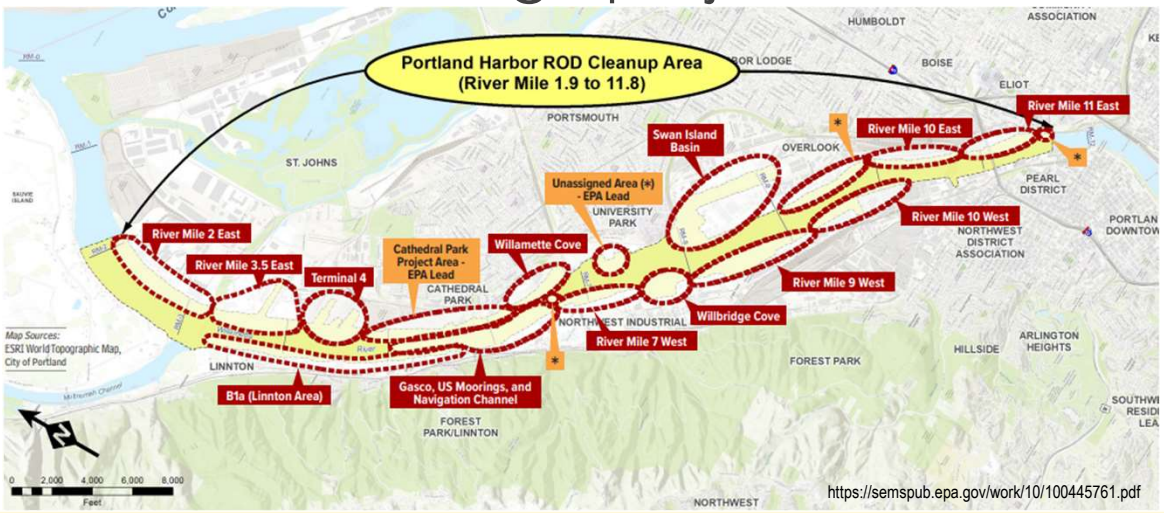
Overview

- Overview of Portland Harbor
  - Regulatory history
  - Source control evaluation framework
- Strategies for source control evaluations
  - Source identification
  - Pathway evaluation
  - Sampling design
  - Data evaluation



Portland Harbor Superfund Site

- Listed as a Superfund Site in December 2000
- River miles 1.9 to 11.8
  - 18 smaller remedial design project areas



Regulatory Framework

- EPA, DEQ, and 6 tribes entered into an MOU in 2001
  - DEQ is the lead for upland portion of site
  - EPA is the lead for in-water portion of site
- DEQ leads source control evaluations and proposes decisions to EPA

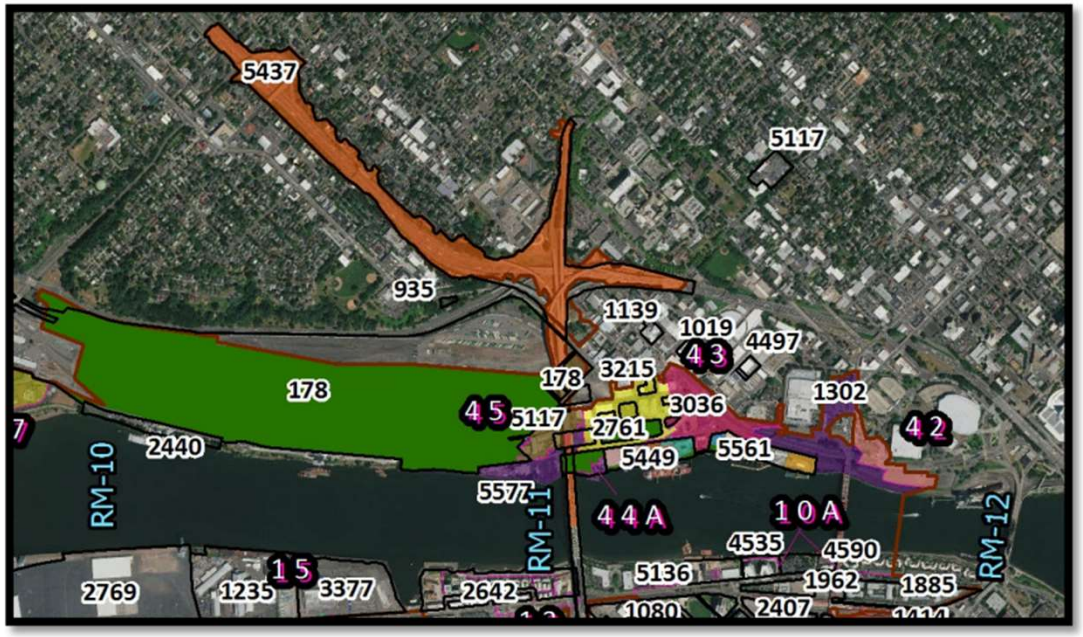
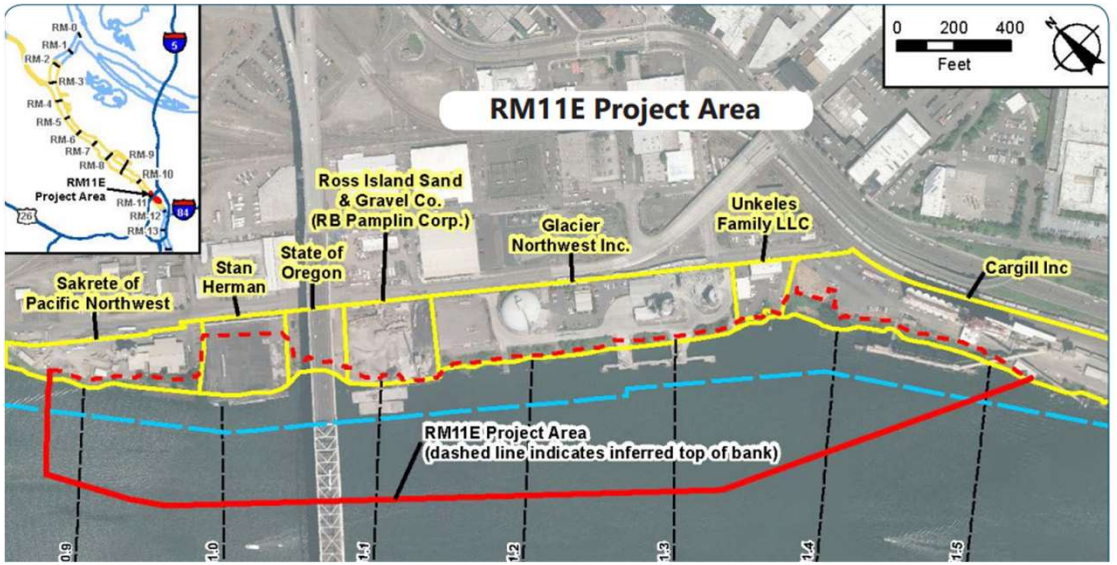


Figure 2.6.3.1. ArcGIS rendering of RM 11E focus area.

https://www.oregon.gov/deq/FilterDocs/PHswStrategyUpdate0320.pdf

Regulatory Framework

- EPA is the lead for sufficiency assessments
  - Conducted be lead in-water party



https://semspub.epa.gov/work/10/100208069.pdf

Source Control Regulatory Framework

Regulatory Guidance

- Joint Source Control Strategy (JSCS, 2005)
  - Outlines framework for evaluating and controlling sources
  - Provides screening level values (SLVs) for soil/water/sediment for human health and ecological receptors
- Record of Decision (ROD, 2017/2019)
  - Provides remediation guidance, with updated SLVs
- Remedial design guidelines

Source Control Evaluation Overview

How the process is described

Source Control Evaluation Overview

Source Control Regulatory Framework

Portland Harbor Sampling Requirements

- Soil and riverbank sampling
- Four groundwater monitoring events (quarterly)
- Four stormwater sampling events
  - 24 antecedent dry period (dry = <0.1")
  - At least 0.2" rain predicted
  - Event duration at least 3 hours
  - Two events must capture first flush

SCE Strategies

- Identify as many potential sources as possible to avoid surprises later
  - Identify historical owners and operations
  - Review historical photographs, known site violations, existing data
  - Complete site walk

https://www.oregonlive.com/trending/2018/02/vintage_aerial_photos_show_how.html

SCE Strategies

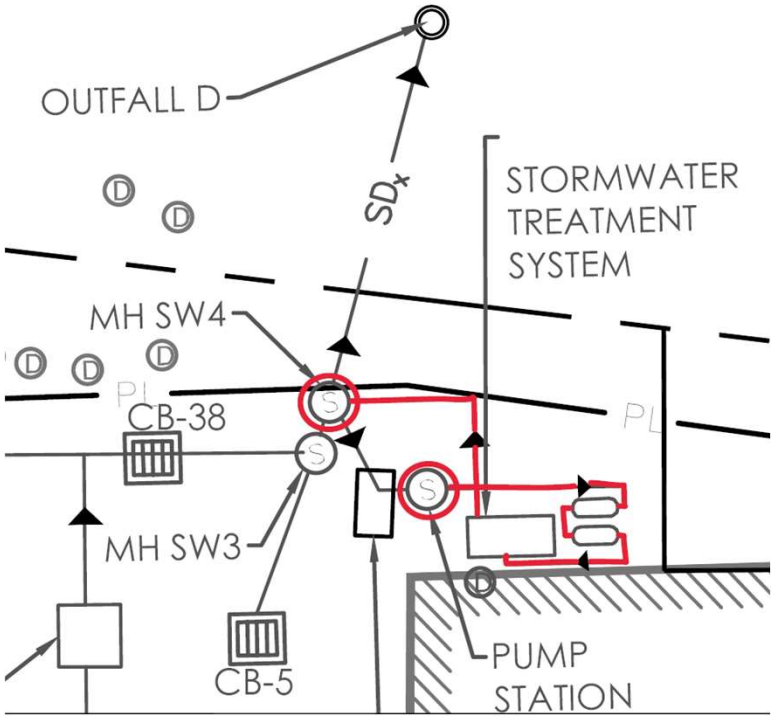
- Evaluate each possible pathway
  - Are there pathways from previous release areas?
  - Complete a site visit during a rain event

SCE Strategies

- Sampling:
  - Capture background/upgradient concentrations for comparison
    - Stormwater
    - Groundwater
  - Select sample points that allow differentiation of sources
    - Catch basins vs. outfall endpoint
    - On site sources

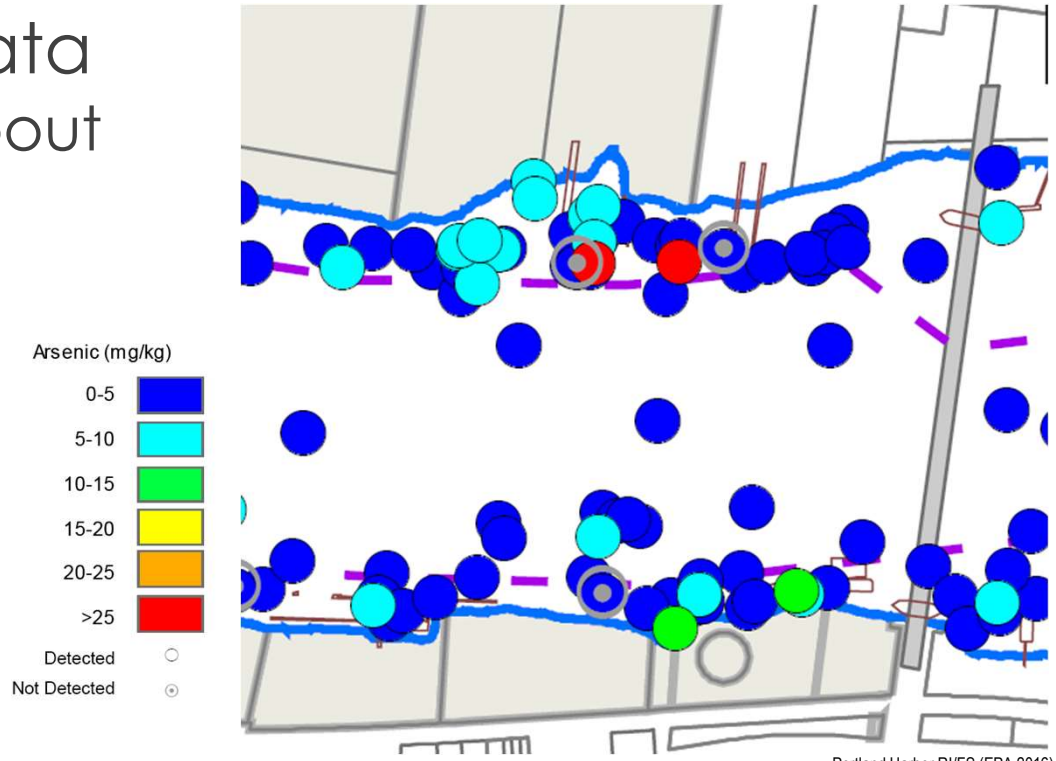
SCE Strategies

- Sampling:
  - Select sample points that will inform evaluation of source control measures (SCMs)
    - e.g., road sweeping, catch basin cleanout



SCE Strategies

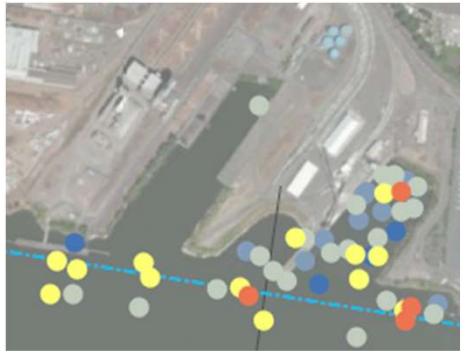
- Review sediment data
  - May provide clues about ongoing, historical, or off-site sources



Portland Harbor RI/FS (EPA 2016)

SCE Strategies

- Review sediment data
  - May also indicate a ubiquitous source



SCE Strategies

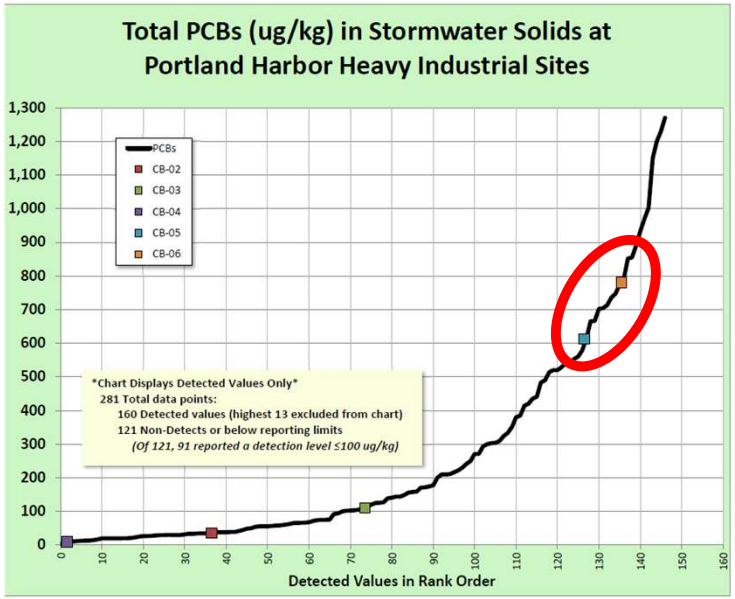
- Review sediment data
  - May also indicate a ubiquitous source

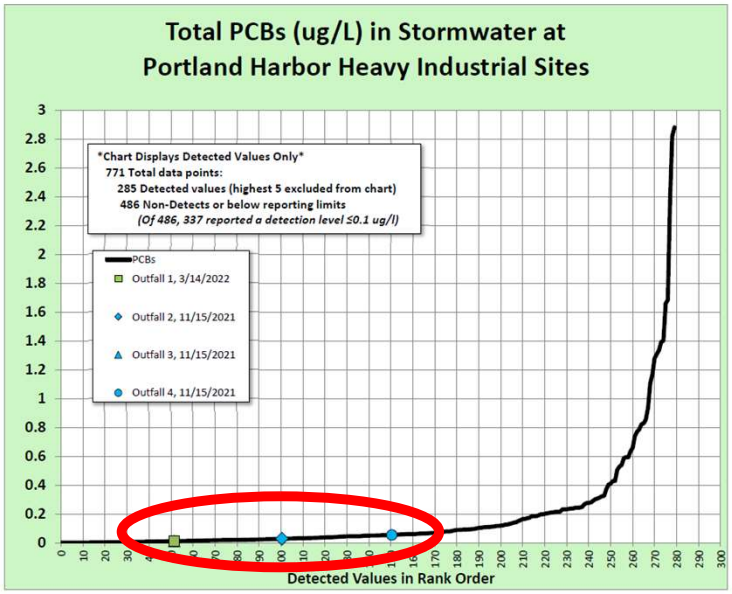
SCE Strategies

- Gather multiple lines of evidence
  - Evaluate results by pathway
    - Soil → groundwater → porewater
    - Soil → catch basin solids → stormwater
  - Changes in results over time
    - Higher earlier in the season compared to later season?
    - Correlations to TSS?

SCE Strategies

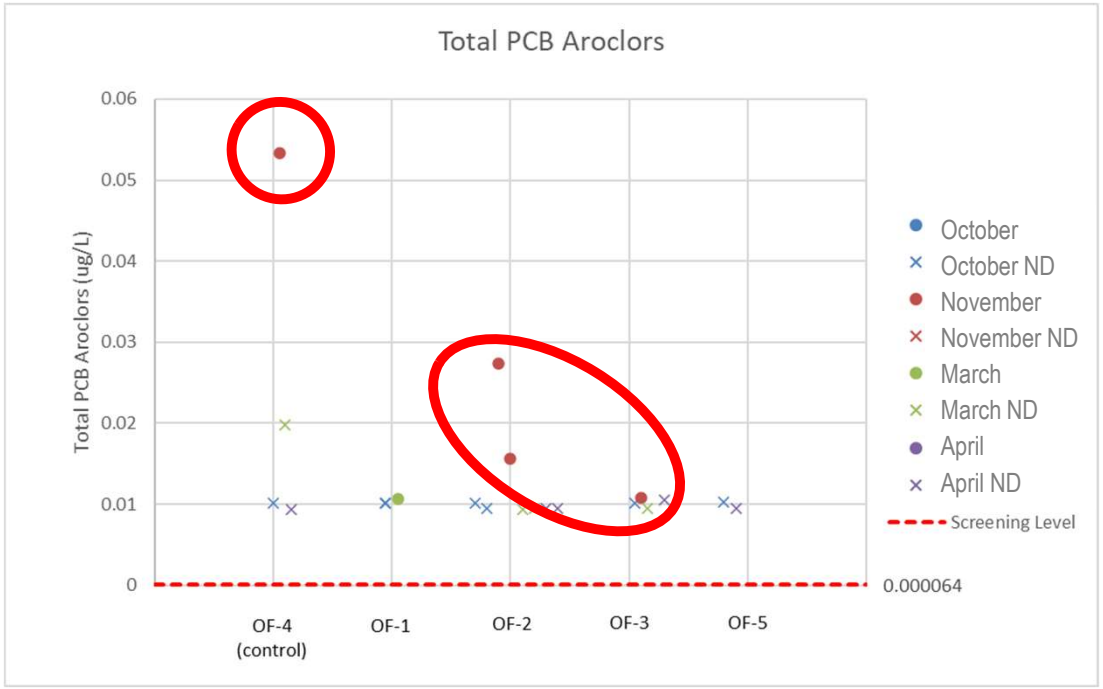
- Gather multiple lines of evidence
  - DEQ knee curves





SCE Strategies

- Gather multiple lines of evidence
  - Background samples:
    - Groundwater: contamination migrating on site or attenuating?
    - Stormwater: indication of urban background or offsite aerial emission source?



Summary

- Portland Harbor, like all mega-sites, is a complex cleanup
- Many strategies for conducting a source control evaluation
  - Look at all evidence and use multiple lines of evidence to piece together the story

Questions?

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