

Tittabawassee River, Saginaw River & Bay Site

Introduction to Monitoring Superfund Cleanups

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Agenda

- Terminology
- Site-specific discussion – what is being monitored
- Questions

Terminology

- **Post Construction Completion (PCC):**
Activities undertaken at remedies following construction of remedial actions.
- **Post Removal Site Control (PRSC):** “includes actions necessary to ensure the effectiveness and integrity of the removal action” [40 CFR §300.415.(I)]

PCC and PRSC

- Helps ensure that cleanup work at a site continues to protect human health and the environment.
- Work can include:
 - routine monitoring of a site;
 - routine reviews of the site to ensure cleanup continues to be effective; and
 - implementing any long-term site restrictions (e.g., institutional controls)

Terminology (cont.)

- Environmental **monitoring** is the process of measuring or collecting environmental data. Embodied in a **Monitoring Plan**.
- **Operation and Maintenance (O&M):** O&M “means [the] measures required to maintain the effectiveness of response actions” (40 CFR §300.5).
- **O&M Plan:** The O&M Plan describes the details for inspecting, operating, and maintaining the remedy.

Site-Wide Monitoring Plan

The 2010 AOC requires a Site-Wide Monitoring Plan

- The Plan is intended to:
 - Assess and document baseline and ongoing conditions
 - Provide a basis for assessing the effectiveness of response actions
- The Plan consolidates monitoring activities.
- The Plan evolves and changes over time to reflect changing data quality objectives and information needs.

Site-Wide Monitoring Plan (cont.)

The Plan includes:

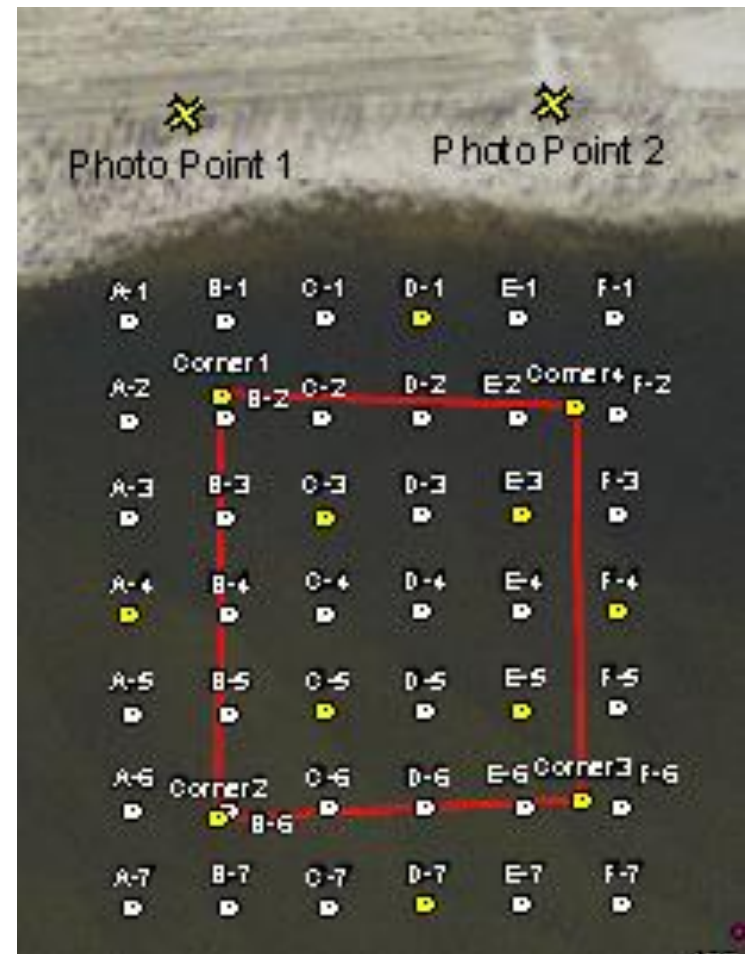
- Post-Response Monitoring
- Contaminant Uptake Into Biota
- Sediment and Contaminant Monitoring

Post-Response Monitoring

- Response action objectives (RAOs) are established for each cleanup
- The RAOs are either:
 - Short-term RAOs, which are expected to be met shortly after construction; or
 - Long-term RAOs, which may require a longer time until the RAOs are attained and/or that may require response actions in other site areas

Post-Response Monitoring (cont.)

- Every cleanup has its own monitoring requirements that get incorporated into the site-wide plan
- Currently monitoring:
 - Stability of sediment caps
 - Integrity of stabilized banks
 - Post-flood conditions at cleaned up properties



Post-Response Monitoring (cont.)

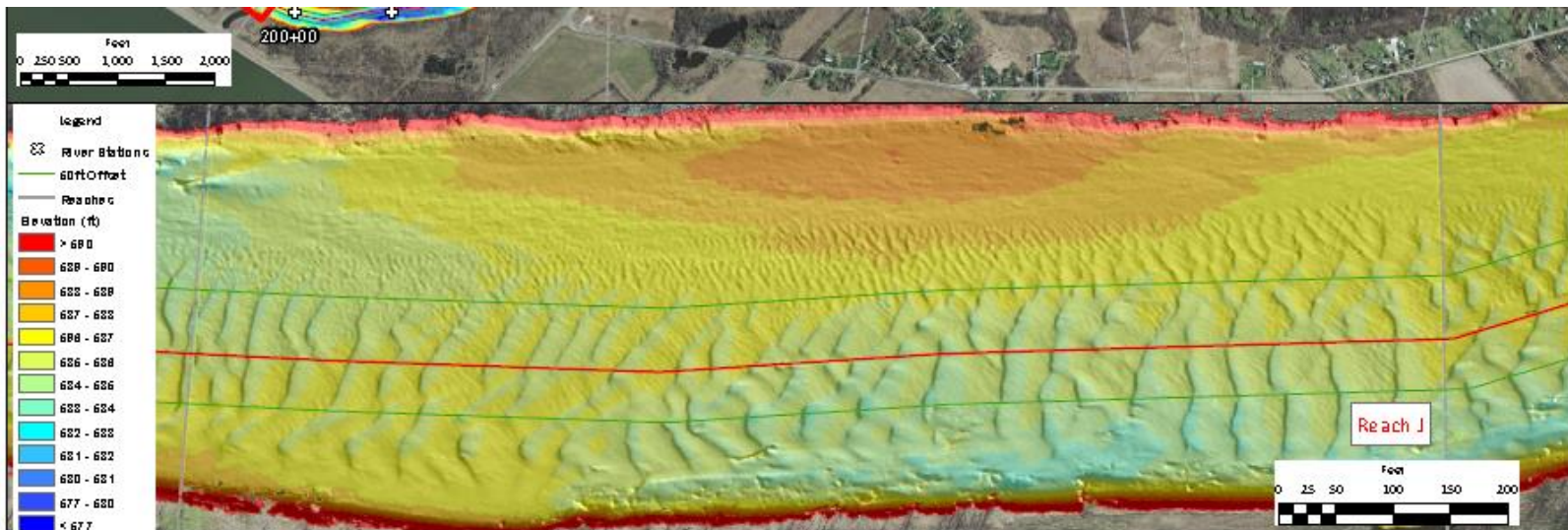
- Monitoring occurs on a specific schedule and event driven
- For SMA 5-1, we will also have Monitored Natural Recovery (MNR) for part of the SMA
 - Natural processes that are fundamental to the recovery of contaminated sediments include ...
reduction in contaminant mobility, physical isolation, and ...

Contaminant Uptake Into Biota

- Currently monitoring fish
 - Three species: channel catfish, smallmouth bass, walleye
- Objectives
 - Measure chemical residues in fish, representing different trophic groups, with consideration of species that anglers preferentially consume;
 - Monitor fish concentrations over time; and
 - Provide for the collection of a manageable amount of data incorporating appropriate sample sizes and intervals

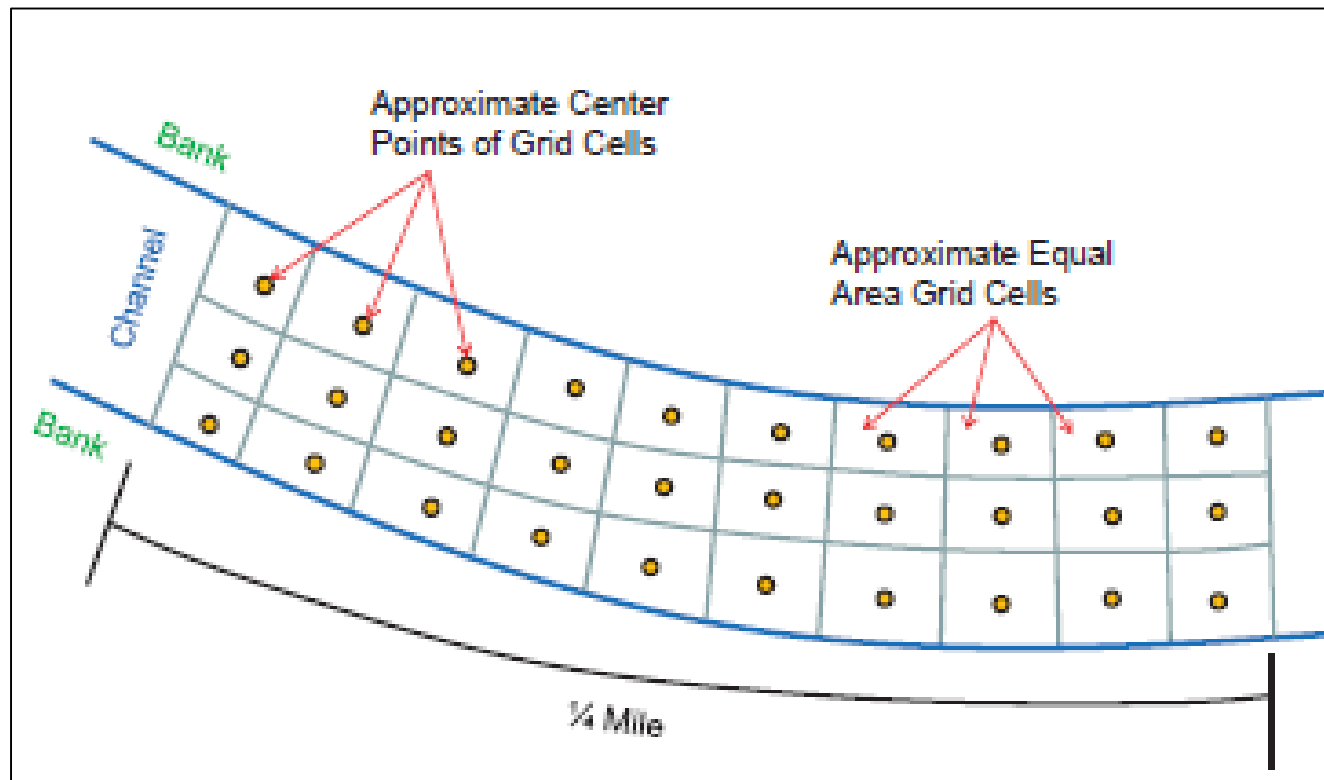
Sediment and Contaminant Monitoring

- Sediment bed stability
 - Bathymetric surveys
 - Bed pin monitoring
- Bank stability
 - Transects
 - Bank pins



Sediment and Contaminant Monitoring (cont.)

- Sediment concentrations
 - ¼ mile composites
 - Repeated over time



Implementation

- Dow is conducting the monitoring, and maintenance if needed
 - Legal obligations in settlement agreements
 - Dow ensures sufficient financial resources to complete all work obligations
- Agencies approve plans, provide oversight, and review results

EPA Guidance

- Guidance for Management of Superfund Remedies in Post Construction:
<https://semspub.epa.gov/work/HQ/196829.pdf>
- Guidance for Monitoring at Hazardous Waste Sites:
<https://semspub.epa.gov/work/HQ/175500.pdf>
- Superfund Post Construction Completion: An Overview:
<https://semspub.epa.gov/work/HQ/174127.pdf>
- Final Implementation of the National Strategy to Manage Post Construction Completion Activities at Superfund Sites:
<https://semspub.epa.gov/work/HQ/174124.pdf>
- Superfund Removal Procedures: Response Management-Removal Action Start-Up to Close-Out
- Monitored Natural Recovery at Contaminated Sediment Sites: Framework to properly design, implement, and monitor MNR
<https://semspub.epa.gov/work/11/175402.pdf>

QUESTIONS?