US EPA's Contaminated Sediments Technical Advisory Group (CSTAG)

Stephen Ells

Sediment Team Leader

Office of Superfund Remediation and Technology Innovation

US EPA

CSTAG Background

- Established in Feb. 2002 by OSWER Directive: Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites
- Purpose – Monitor the progress of and provide advice regarding a small number of large, complex, or controversial contaminated sediment Superfund sites.

Current CSTAG Members

- R 1- Kymberlee Keckler
- R2 – Doug Tomchuk
- R3 – Randy Sturgeon
- R4 – Craig Zeller
- R5 – Stephanie Ball
- R6 – John Meyer, co-chair
- R7 – Craig Smith
- R8 – Judith McCulley
- R9 – Fred Schauffler
- R10 – Allison Hiltner
- ORD – Earl Hayter, Barbara Bergen
- OSRTI – Leah Evison, Steve Ells, co-chair

CSTAG Goals

- To help RPMs appropriately investigate and manage their sites in accordance with the 11 risk management principles
- To encourage national consistency in the management of sediment sites by providing a forum for exchange of technical and policy information
- To provide a mechanism for monitoring and evaluating the progress at a number of the largest or most complex sites

CSTAG Process

- Convene 2-day meeting
  - site background briefing by RPM
  - site visit
  - stakeholder presentations
    - *state*
    - *trustees*
    - *PRPs*
    - *community groups*
  - draft the recommendations
- Final recommendations issued
- Regional response due in 60 days
- www.epa.gov/superfund/resources/sediment/CSTAG.htm

Seven Current CSTAG Sites

- Allied Paper/Portage Creek/ Kalamazoo River, Kalamazoo, MI
- Ashland/Northern States Power Lakefront, Ashland, WI
- GE-Housatonic/Rest of River, Pittsfield, MA
- Palos Verdes Shelf, Los Angeles, CA
- Portland Harbor, Portland, OR
- Lower Duwamish Waterway, Seattle, WA
- Kanawha River, Charleston, WV

Example Recommendations – #1 Control Sources Early

Portland Harbor - The CSTAG recommends that an additional effort be made to evaluate at least qualitatively the relative contribution of contaminant releases from each major upland/on-shore source to human health and ecological risks in the ISA. A prioritization scheme should also be developed in order to identify and classify the largest contaminant contributions and the most significant transport pathways (*e.g.,* groundwater, bank erosion, overland flow, *etc.*). This information coupled with the results of a screening risk assessment could be used to prioritize any upland source control actions and in-river interim actions that may be warranted.

#2 – Involve the Community Early and Often

Kalamazoo - Although recreational fishing is common in the river, work with the communities to determine the nature and extent, if any, of subsistence fishing. Consider gathering this information on a reach-specific basis.

#3 – Coordinate with States, Local Governments, Tribes, and Natural Resource Trustees

PV Shelf - If EPA develops risk-based protective fish tissue levels that are different than the State health advisory values, EPA and the State should develop a risk communication plan to clearly explain these differences.

#4 - Develop and Refine a Conceptual Site Model that Considers Sediment Stability

Kalamazoo - Evaluate the relative risk contribution of PCBs into the river and into mink and fish from the PCB-contaminated paper waste in the flood plains and formerly inundated areas as compared to the contribution from the in-stream sediments through water column transport or via sediment transport.

#5 - Use an Iterative Approach in a Risk-Based Framework

Housatonic - Any lessons learned from evaluating the monitoring data from the upstream removal actions should be considered in the decision-making process for the Rest of River.

#6 – Carefully Evaluate the Assumptions and Uncertainties Associated with Site Characterization Data and Site Models

LDW - For the Phase II PCB analyses, use congener-specific analyses to ensure a statistically significant correlation with Aroclor data and be mindful of possible phthalate analytical interference. CSTAG is concerned that the currently proposed 13 samples may not be sufficient to achieve a correlation.

#7 - Select Site-specific, Project-specific, and Sediment-specific Risk Management Approaches that will Achieve Risk-based Goals

LDW - If the State of Washington's sediment criteria for the protection of benthic organisms are used as the basis of sediment cleanup levels, consider using a statistically-based method to confirm that the sediments remaining after an action meet the criteria. If any site sediment cleanup levels are based on protection of ecological receptors that are motile or migrate (not necessarily out of the site), consider using a surface-weighted averaging approach.

#8 - Ensure that Sediment Cleanup Levels are Clearly Tied to Risk Management Goals

Housatonic - Should the risk assessments demonstrate unacceptable risks, the baseline risk assessment data should also be used to develop a range of protective sediment clean-up goals for the human health and/or ecological assessment endpoints that are driving the need for a response. If a cleanup is warranted, the relationship between the PCB sediment and/or flood plain soil actions levels, the final sediment and flood plain cleanup levels and residual contaminant concentrations, and the risk-based goals (e.g., safe fish tissue concentrations) should be clearly explained.

#9 - Maximize the Effectiveness of Institutional Controls and Recognize their Limitations

Kalamazoo - If an alternative is proposed that assumes one or more of the dams will stay in place, develop mechanisms to ensure dams are maintained, or consider developing a contingency remedy that would address the fate and transport of the impounded sediments if one or more of the dams are removed.

#10 - Design Remedies to Minimize Short-term Risks while Achieving Long-term Protection

PV Shelf - Evaluate the effect that different grain-sized cap materials would have on attracting or repelling white croakers to the capped area.

#11- Monitor During and After Sediment Remediation to Assess and Document Remedy Effectiveness

Ashland - Ensure the pre-Remedial Action baseline data are sufficient for comparison. Evaluate whether air monitoring during dredging/stockpiling is necessary.

Upcoming OSRTI Activities and Products

- Superfund Sediment Resource Center – SSRC to provide expert review of draft documents on:
  - sediment stability
  - modeling
  - eco and human health risk
  - sampling design
  - remedy evaluation and design
  - monitoring plan

National Sediment Conference

- Addressing Uncertainty and Managing Risk at Contaminated Sediment Sites
- Sponsored by USACE, EPA, SMWG, NOAA, and Navy
- Oct 26 – 28, St Louis
- Small panels will discuss six or so key topics/issues; audience dialogue

New OSRTI fact sheets/guidance

- SMART Sheets
  - Performing and using sediment toxicity tests in assessing baseline eco risks and in monitoring remedy effectiveness
  - Performing and using benthic assessment field studies in….
  - Performing and using BSAFs and simple food chain models in….
  - Using data from sediment tox tests, field studies and food chain models in a weight-of-evidence approach to develop sediment cleanup goals that are protective

More Fact Sheets

- Monitoring – more technical guidance on designing short-term and long-term monitoring plans
- Bioaccumulation – guidance on when to use site-specific BSAFs vs. a bioaccumulation model
- PCB Evaluation – guidance on when to use total PCBs, vs. homologues, vs. congeners

OSRTI Sediment Team Motto

Do good science and be practical!