ITRC TEAM PROJECT SUMMARY STATEMENT

PRE-IMPLEMENTATION

ITRC Contaminated Sediments – Bioavailability Team
Incorporating Bioavailability Considerations into the Evaluation of Contaminated Sediment Sites
Kimberly McEvoy (NJ) and John Cargill (DE), Team Co- Leaders
April 2011

METHODOLOGY SUMMARY

State of the Methodology

The ITRC Contaminated Sediments – Bioavailability Team has developed a website entitled "Incorporating Bioavailability Considerations into the Evaluation of Contaminated Sediment Sites." This site is an online technical and regulatory guidance document that will assist state regulators and practitioners in understanding and incorporating fundamental concepts of bioavailability into contaminated sediment management, including communicating risk and the need for potential remedial action(s) to the public and other parties involved in the decision-making process. This online document offers a compilation of the existing concepts, tools, and measures for assessing bioavailability. Case studies and examples of how these tools and measures have been used in decision making are also included. The intended users of this guidance are individuals who have a working knowledge of contaminated sediment management but seek additional information about bioavailability.

The objectives of this guidance are as follows:

- provide a basic understanding of bioavailability
- provide direction as to where bioavailability considerations may be pertinent in the human health and ecological exposure assessment pathways
- provide a direction to the pertinence of bioavailability during risk assessment process
- describe the bioavailability assessment tools and their application
- describe how bioavailability considerations can be used in risk management at contaminated sediment sites
- provide case studies that highlight the application of bioavailability assessment tools and methodologies in contaminated sediment risk management

The current process used to assess sediment toxicity includes one or more elements of the Sediment Quality Triad approach. Using this approach includes the establishment of Sediment Quality Guidelines (SQGs), which offer simplicity and utility; however, those values are thresholds that focus only on benthic organisms. Unfortunately, SQGs generally do not address food-chain risks associated with bioaccumulation of contaminants in sediment.

There is an increasing scientific and regulatory acknowledgement for the need to consider contaminant bioavailability in exposure assessments. If contaminants are present but not bioavailable, they should not be included in the calculation of risk. This approach can optimize the extent of cleanup by lowering overall costs while at the same time being protective of the environment. In addition, it can be an important factor in balancing the risks caused by remedial action with the risks addressed by the remedial action. This guidance will assist state regulators and practitioners in understanding and incorporating fundamental concepts of bioavailability in contaminated sediment management.

The Future

The U.S. Environmental Protection Agency estimates that approximately 10% of the sediment underlying our nation's surface water is sufficiently contaminated with toxic pollutants to pose potential risks to fish and to humans and wildlife that eat fish. This represents roughly 1.2 billion cubic yards of contaminated sediment. According to current average costs for managing contaminated sediments, this volume of material could cost several trillions of dollars to dredge.

The ITRC Contaminated Sediments – Bioavailability Team expects this guidance to be used by responsible parties, state and federal regulators, practitioners, consultants, and public and tribal stakeholders, as a tool to understand how bioavailability can be useful in managing risk to ecological and human receptors at contaminated sediment sites.

TEAM SUMMARY

Process Attributes

The ITRC Contaminated Sediments – Bioavailability Team included representatives from state and federal agencies, industry, academia, and stakeholders. The team's diverse expertise included biologists, risk assessors, geologists, and engineers. However, many team members came into the team with little or no experience and learned key information while "moving through" the process. Quality members who were knowledgeable regarding the concept of bioavailability provided valuable "jump-off knowledge" for the team to learn and help with next phases of document work.

Key Learning/Recommendations

The Contaminated Sediments – Bioavailability Team offers the following lessons learned and associated recommendations to assist ITRC and future teams in product development:

- The team organized the website like a technology and regulatory guidance document. There were some issues with development since it was one of the first web-based documents with no available template:
  - The document needs to be edited completely before conversion to a website. The document cannot be updated easily since if one section is edited, the entire document must then be uploaded.
  - Build in features to track use of document. These could include a "Feedback" button or the development of a new survey feature.

  - Tables should be set up in portrait format since text in wide tables (i.e., landscape view) can not be seen well on a website.
- Team members were motivated by the team co-leaders to create a document which would provide specific information to the defined user groups.
- Frustration was noted when the team was almost done with the document and new team members came on board.
- Stakeholders noted that watershed and source control is still an issue. It is not cost-effective to clean up sediments only to have recontamination.
- The team recognizes the importance of developing subgroups and division of tasks.
- Program advisors were critical in the evolution of technical development.
- While teleconferences are important and cost-effective, team meetings are critical and helpful for team members to gain a broader perspective of the issues and foster direct team interaction.
- Development of an "implementation team" from existing team members is one option that will assist with implementation activities in the future.
- Since the document is Web-based (a "living document"), routine website maintenance will be necessary. These activities should be planned and accounted for at the very beginning of the project.
- When a Web format is used, ITRC should consider including yearly costs for website maintenance in team's implementation budget.

Next Steps

During this team's implementation phase, team members will develop outreach materials to help with ongoing marketing of this technical website. It is anticipated that ITRC will assist the team through budget needs to enhance the website with updates and new approaches to future technical deployment of information.