



2011 ITRC Technical Project Teams

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Biochemical Reactors for Mining-Influenced Water **New for 2011**

Leads: Cherri Baysinger (MO) and Paul Eger (MN)

Project: Examine the background and current status of using biochemical reactors to treat mining-influenced water. A biochemical reactor (BCR) is a system that uses microorganisms to treat or remediate water contaminated with heavy metals. This project will produce a technology and regulatory guidance describing the application, limitations, regulatory barriers, and best practices for using biochemical reactors. The guidance should lead to greater use of, and confidence in, this technology, as well as providing helpful background information.

Contaminated Sediments - Bioavailability

Leads: John Cargill, DE and Kim McEvoy, NJ

Project: Develop a Web-based Technical Regulatory Guidance document on the concepts, process, and use of bioavailability in a risk-based decision framework at a contaminated sediment site. The document will provide a common resource for regulators and practitioners to determine the appropriate application of bioavailability tools and considerations within human health and ecological exposure pathways.

Contaminated Sediments - Remediation **New for 2011**

Leads: John Cargill, DE and Greg Neumann, NJ

Project: Develop a web-based Tech-Reg Guidance document to assist the user in the identification and selection of applicable sediment remedial approaches to mitigate exposure to sediment contamination. The Tech-Reg will describe the proper application of traditional and emerging sediment remediation technologies such as dredging/excavation, capping (including active caps that provide in-situ treatment), and long term monitoring to aid the user in the selection of a remedy that is protective of human health and the environment.

Environmental Impacts of Ethanol and Bio-Based Fuels

Lead: Bill Gidley, NE

Project: Develop a technical and regulatory guidance document and training that provides guidance on the environmental impact associated with releases of biofuels to the environment during the transportation, distribution, and storage of these fuels. Topics to be covered in depth include: release scenarios and prevention, site characterization, fate and transport, and remediation strategies. To make the document relevant as new alternative fuels are introduced to the market, the document will describe a process for evaluating both currently available biofuels and future biofuels.

Environmental Molecular Diagnostics

Lead: Bob Mueller, NJ and Bonnie Pierce, WY

Project: Environmental molecular diagnostics" (EMDs) are various molecular biological tools that can identify and quantify key microorganisms and their genes, and compound specific isotope analysis (CSIA), a chemical method that measures the relative abundance of different isotopes. These techniques can be used to assess when natural attenuation as a stand-alone remedy is sufficient, or whether enhancements such as chemical amendments or bioaugmentation are necessary.

The EMD team will summarize the fundamental background and current status of available EMDs and provide objective guidance on the best practices for using EMDs and evaluating, applying and interpreting the results of EMDs. Technical and regulatory guidance should lead to greater use and confidence in these diagnostics, and help site managers faced with major decisions about site design, management and resolution.

Green & Sustainable Remediation

Lead: Tom O'Neill, NJ and Rebecca Bourdon, MN

Project: Produce a Technology Regulatory Guidance document and develop associated Internet-based training to educate state regulators and other practitioners on effectively applying green and sustainable remediation



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(GSR) principles in their everyday projects. The focus of the document is to develop a systematic process to incorporate GSR approaches into site cleanups, irrespective of what phase the project is in the remediation life cycle. The document will emphasize a systematic process that can be applied at simple or complex remediation sites across the spectrum of regulatory programs. ITRC GSR team is working in close coordination with other GSR related initiatives from US EPA, ASTSWMO, ASTM, SURF, etc. ensuring that our team products will complement other products and efforts.

Groundwater Statistics and Monitoring Compliance **New for 2011**

Leads: Ning-Wu Chang, CA and Josh Gowens, AL

Project: Develop a guidance document based on the Unified Guidance for Groundwater Statistics and Monitoring Compliance. The document will help the practitioner to understand the statistical techniques and related monitoring evaluation, optimization, and measurement technologies to manage groundwater monitoring programs and to make better project management decisions.

Incremental Sampling Methodology

Leads: Mark Malinowski, CA and Ligia Mora-Applegate, FL

Project: Develop a Technical and Regulatory Guidance document for the appropriate implementation of Incremental Sampling (IS) for surface soil. The document will provide a sound basis for adapting the IS approach to meet project goals and site-specific objectives. The document includes: overview of IS concepts and principles; IS methods and considerations - with an emphasis on clearly articulated and defined decision units - and sample collection and processing protocols; regulatory considerations and issues; and case studies.

Integrated DNAPL Site Strategy

Lead: Naji Akladiss, ME

Project: Develop an "Integrated DNAPL Site Strategy (IDSS)" to address the technical and regulatory issues involved in managing chlorinated solvent contamination at a site. The IDSS will assist users in characterizing critical site conditions according to manageable compartments, setting achievable (SMART) objectives, selecting and monitoring effective technology systems, and transitioning to new, better or more cost effective technologies. The guidance will provide examples in each phase of the site management process to demonstrate the applicability and values of the elements described in the guidance.

Permeable Reactive Barriers: Technology Update

Leads: John Doyon, NJ and Kimberly Wilson, SC

Project: Develop technical and regulatory guidance document discussing new developments and innovative approaches in the applications of PRBs to treat groundwater contaminants. Additional prove-outs and updates since the previous PRB lessons learned document in 2005 will also be included. The document will emphasize recent advances in biowalls, non-iron reactive media, and newer injection methods.

Solidification/Stabilization

Lead: Wilmer Reyes, DE

Project: Develop technical and regulatory guidance to meet the need of regulators and practitioners to confidently identify and select appropriate performance specifications for the design, implementation, and monitoring of stabilization/solidification (S/S) remedies. Guidance on selecting performance specifications as presented in this document will allow practitioners to apply a consistent assessment methodology to a variety of remediation projects.