



## 2012 ITRC Technical Project Teams

Register at [www.itrcweb.org](http://www.itrcweb.org)

### Biochemical Reactors for Mining-Influenced Water

**Leads:** Cherri Baysinger (MO) and David Cates (OK)

**Project:** Examine the background and current status of using biochemical reactors to treat mining-influenced water. A biochemical reactor (BCR) is an engineered treatment system that uses an organic substrate to drive microbial and chemical reactions to reduce concentration of metals, acidity, and sulfate in mining-influenced water. A BCR is suitable for remote application and can potentially be implemented with minimal operation and maintenance. This project will produce a Web-based technical and regulatory guidance document and Internet-based training course describing the application, limitations, regulatory barriers, and best practices for using BCRs.

### Contaminated Sediments—Remediation

**Leads:** John Cargill (DE) and Greg Neumann (NJ)

**Project:** Develop a Web-based technical and regulatory guidance document and Internet-based training course to assist the user in the identification and selection of applicable approaches to mitigate exposure to sediment contamination. The guidance document and training course will describe the proper application of traditional and emerging sediment remediation technologies, such as monitored natural recovery, in situ remediation, capping, and removal (dredging/excavation) to aid the user in the selection and monitoring of a remedy that is protective of human health and the environment.

### DNAPL Site Characterization **New for 2012**

**Leads:** Naji Akladiss (ME) and Michael Smith (VT)

**Project:** Develop a technical and regulatory guidance document and Internet-based training course summarizing emerging dense, nonaqueous-phase liquid (DNAPL) site characterization methods and where they fit into current regulatory processes. The project will provide objective guidance on emerging DNAPL site characterization methods and their applicability in various geologic settings. This work will help regulators, project managers, and stakeholders improve their understanding of these techniques prior to major site characterization decisions.

### Environmental Molecular Diagnostics

**Lead:** Bob Mueller (NJ)

**Project:** Summarize the fundamental background and current status of available environmental molecular diagnostics (EMDs) and provide objective guidance on the best practices for using EMDs, including evaluating, applying, and interpreting the results of EMDs. EMDs is a collective term that describes a group of advanced and emerging techniques used to analyze biological and chemical characteristics of environmental samples. The molecular biology-based EMDs include methods that can identify and quantify key microorganisms, enzymes, and/or genes involved in specific biodegradation processes. EMDs also include compound specific isotope analysis (CSIA), a chemical method that measures the relative abundance of stable isotopes in contaminants to determine the extent of specific chemical and biochemical reactions impacting the contaminant. These techniques can be used in site management, for example, to assess when natural attenuation as a standalone remedy is sufficient or whether enhancements are necessary.

### Geophysical Classification for Munitions Response **New for 2012**

**Leads:** Roman Racca (CA) and Tracie White (CO)

**Project:** Develop a guidance document and Internet-based training course that reflects recent technical and procedural advances in detecting and classifying geophysical anomalies for munitions response (MR) projects. Geophysical anomaly classification is a new, cutting-edge technology, in which geophysical anomalies (e.g. scrap metal, unexploded ordnance, etc.) are detected on a munitions response site, and then, with the use of new instruments and advanced geophysics, the anomalies are classified underground in order to determine whether or not the individual items will be removed. The guidance document and training course will provide guidance to environmental professionals concerning the design and execution of geophysical classification, including the geophysical detection and classification instruments, processing techniques, and quality control measures to support a successful MR project. This project will describe the science behind geophysical classification, the steps to be taken in the field and during the data processing, and provide measures to allow the quality of the work to be assessed, thereby increasing the scientific defensibility, effectiveness, and efficiency of MR projects.



## 2012 ITRC Technical Project Teams

Register at [www.itrcweb.org](http://www.itrcweb.org)

### Groundwater Statistics and Monitoring Compliance

**Lead:** Ning-Wu Chang (CA)

**Project:** Develop a technical and regulatory guidance document for the application of groundwater statistics at all types of sites. The guidance will help practitioners understand the statistical techniques used throughout the groundwater remediation project life cycle related to monitoring, evaluation, and optimization. The guidance will also provide information for practitioners who have technical and project management experience but are challenged with reviewing or implementing statistics. The guidance will bring clarity to the planning, implementation, and communication of groundwater statistical methods and results and provide information about available tools and software. The guidance will lead to sound groundwater statistics for better site management decisions.

### Incremental Sampling Methodology

**Leads:** Mark Malinowski (CA) and Ligia Mora-Applegate (FL)

**Project:** Develop a technical and regulatory guidance document and Internet-based training course for the appropriate implementation of incremental sampling (IS) for surface soil. The project will provide a sound basis for adapting the IS approach to meet project goals and site-specific objectives and includes the following: overview of IS concepts and principles; IS methods and considerations, with an emphasis on clearly articulated and defined decision units; sample collection and processing protocols; regulatory considerations; and case studies.

### Petroleum Vapor Intrusion **New for 2012 (Registration will start Feb 15)**

**Leads:** John Boyer (NJ) and John Menatti (UT)

**Project:** Produce a technical and regulatory guidance document and an Internet-based training course that describe a multiple-lines-of-evidence approach for evaluating petroleum vapor intrusion. The guidance document and training course will describe the differences between chlorinated and petroleum hydrocarbons, particularly the biodegradation of petroleum hydrocarbon vapors in the vadose zone. A comprehensive practical methodology for evaluating and mitigating sites for petroleum vapor intrusion will be developed.

### Risk Assessment **New for 2012**

**Lead:** John McVey (SD)

**Project:** Develop a technical and regulatory guidance document and Internet-based training course on state-of-the-art principles and practices focusing on the risk of soil and groundwater contamination to human health. The project will include modules in four primary areas: hazard identification, dose-response assessment, exposure assessment, and risk characterization. Risk communication may also be included. The guidance document and training course will help to incorporate new state-of-the-art methods as they become available and maintain high-quality risk assessments for use in cleanups or other state regulatory needs.