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LAND RESEARCH PROGRAM

BUILDING A SCIENTIFIC FOUNDATION FOR SOUND ENVIRONMENTAL DECISIONS

Overview of Land Research Program

Randy Wentzel
National Program Director

Land Research Program

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Program Purpose

- **Restoration:** to provide improved scientific knowledge and develop and apply more cost effective tools, models and methods to inform decisions on land restoration.
- **Preservation:** to provide improved scientific knowledge and develop and apply more cost effective tools, models and methods to manage material streams and, in collaboration with ecology and sustainability programs, to inform land use/reuse decisions.

Accomplishments

- Contaminated sediment research has provided techniques for food chain modeling of PCBs and remediation efforts have evaluated alternative methods, and dredging effectiveness issues
- A Smart Energy Resources Guide is a key document supporting Green Remediation
- Multimedia modeling produced a comparative risk reduction analysis for the OSWER waste minimization program
- Coal Combustion Residue reports on characterization and metal availability are informing regulatory actions
- Comparative toxicity studies of amphibole asbestos fibers supports Libby, MT remediation



Accomplishments – Ground Water

- Ground water research develops and applies various technologies to provide cost effective solutions for inorganic (including mining sites) and organic contaminants
- Vapor intrusion publications have addressed: the limitations of vapor intrusion models, sampling methods, and mitigation
- Underground Storage Tank research has developed treatment methods, models to support state guidance on MTBE and leveraged ethanol and gasoline plume models to support biofuels



Communication

- Released a Land Research Program web site epa.gov/ord/landscience
- Enhanced research planning with OSWER and the Regions
- Collaboration: with NIEHS Superfund Basic Research Program staff to increase relevance and through EPA membership on SERDP workgroups and panels

Strategic Directions FY10-14

- Sediment remediation effectiveness and assessment of vapor intrusion into building are areas of increased emphasis for Superfund.
- An integrated cross-laboratory effort on bioavailability of metals is being initiated.
- Green remediation and land use/reuse (e.g. Brownfields) are areas where ORD is discussing a cross program role.
- Developing closer linkages to Sustainability Program via biofuels and Life Cycle Assessment
- A new Environmental Technology Verification Center on material management and remediation will support technology validation

Anticipated Accomplishments FY10 - 14

- Develop processes to assess the effectiveness of sediment remediation
- Report on the State of the Science for long-term stewardship of Permeable Reactive Barriers at hazardous waste sites.
- Synthesis document on ground water dense non-aqueous phase liquids (DNAPL) remediation technologies will be communicated to the regional forum.
- Publish reports on vapor intrusion modeling and engineering factors to determine approaches for screening and remediation.
- Demonstrate the long-term performance of passive treatment of mine waste contaminants of surface water
- Publish a comparative toxicity report on effects of asbestos fibers
- Complete studies on coal combustion residue (CCR) chemical/physical composition, leaching potential, and beneficial reuse for OSWER.
- Publish an improved in-vitro method to measure arsenic bioavailability and a new method for arsenic speciation for OSWER Bioavailability Workgroup