

Message #107: January 2006

Happy New Year! We hope everyone has a safe and prosperous 2006.

Welcome to TechDirect! Since the December 1 message, TechDirect gained 235 new subscribers for a total of 23,925. If you feel the service is valuable, please share TechDirect with your colleagues. Anyone interested in subscribing may do so on CLU-IN at <http://clu-in.org/techdirect> . All previous issues of TechDirect are archived there. The TechDirect messages of the past can be searched by keyword or can be viewed as individual issues.

The purpose of TechDirect is to identify new technical, policy and guidance resources related to the assessment and remediation of contaminated soil, sediments and ground water.

Mention of non-EPA documents or presentations does not constitute a U.S. EPA endorsement of their contents, only an acknowledgment that they exist and may be relevant to the TechDirect audience.

Open Solicitation

EPA National Student Design Competition for Sustainability.

The US Environmental Protection Agency's 2006 P3 (People, Prosperity and the Planet) competition opened December 12, 2005. This grant program advances a sustainable future by fostering the next generation of scientists, engineers, and technology workers. For the 2006 competition, up to 50 teams will receive initial grants of up to \$10,000 to develop their designs. The program awards grants to teams of undergraduate and graduate students, along with their faculty advisors, to design and develop innovative technologies and other sustainability projects, and in the process integrate sustainability issues into higher education curricula. Each May, teams present their projects on the National Mall in Washington, DC for a chance to win additional funding to move their ideas from the design phase to the marketplace. The awards competition is judged by a panel of experts convened by the National Academies, advisors to the nation on science, engineering, and medicine. The deadline for submission is February 20, 2006. For more information, see

<http://es.epa.gov/ncer/p3/>

Internet Seminars

ITRC What's New with In Situ Chemical Oxidation? - January 10.

This seminar presents updated guidance and technology advancement information for In Situ Chemical Oxidation. Topics include a regulatory discussion related to ISCO implementation; details on the chemistry behind ISCO technology; considerations for system design and application, including health and safety; and performance evaluation information. The course is based on the ITRC's In Situ Chemical Oxidation of Contaminated Soil and Groundwater, Second Edition (ISCO-2, 2005), with sections on technology overview and applicability, remedial investigations, safety concerns, regulatory concerns, injection design, monitoring, stakeholder concerns, and case studies. For more information and to register, see <http://www.itrcweb.org> Or <http://clu-in.org/studio> .

ITRC What is Remediation Process Optimization And How Can It Help Me Identify Opportunities for Enhanced and More Efficient Site Remediation? - January 12.

This training discusses the value of optimization in efficiently and objectively setting and attaining remediation goals. Key elements of RPO that will be discussed in the training include: Appropriate use of up-to-date conceptual site models (CSM); Flexible Remedial Action (RA) operations considering technology limitations and risk assessments; use of treatment trains for each target zone, and developing performance objectives for each element; development of an exit strategy for each remedy component considering life-cycle factors; and life-cycle cost analysis as a decision-making tool with the requirement that protectiveness must be maintained or improved. For more information and to register, see <http://www.itrcweb.org> or

<http://clu-in.org/studio> .

ITRC Permeable Reactive Barriers: Lessons Learned and New Directions - January 24.

This training presents updated information regarding new developments, innovative approaches, and lessons learned in the application of PRBs to treat a variety of groundwater contaminants. The information will be presented by reviewing the approaches and results at several sites where PRBs have been deployed. The training is based on the ITRC guidance document titled Permeable Reactive Barriers: Lessons Learned / New Directions (PRB-4, 2005). For more information and to register, see

<http://www.itrcweb.org> Or <http://clu-in.org/studio>.

Revegetation and Restoration of an Oil Contaminated Wetland

in Northern New Jersey - January 19. This presentation will attempt to show that a carefully supervised cleanup followed by a scientifically driven monitoring program can be effective in removing oil from a sensitive wetland habitat using the Green Pond Oil Spill Removal project as the prime example. A monitoring program for determining the success of the revegetation/restoration effort was conducted. Species composition and productivity measurements were an integral part of the parameters to measure the progress of the effort to determine comparability between the remediated site and undisturbed wetlands. The presentation will incorporate all that has been learned from the removal activity in terms of How Clean is Clean as applied to an oil contaminated fresh water wetland. This information should be useful for decision makers, responders, and consultants alike when faced with remediating disturbed or contaminated habitats. For more information and to register, see <http://clu-in.org/studio> .

NIEHS DNAPLs - Biological Remediation Processes - January 25. This seminar is the fourth in a series sponsored by the NIEHS Superfund Basic Research Program to present current research on DNAPLs contaminated sites. The seminar will summarize a comprehensive literature review on the microbial degradation of chlorinated solvents. Chlorinated solvents such as chlorinated ethenes, ethanes and methanes are important priority pollutants of groundwater. Diverse strategies are utilized by microorganisms in the degradation of organochlorine compounds ranging from reductive dehalogenation, hydrolytic to oxygenolytic release of chloride. To understand how microorganisms gain energy and benefit from biodegradation of chlorinated solvents, one must consider biodegradation as a redox reaction in which an electron donor becomes oxidized at the expense of an electron acceptor. In addition to the discussion of bioremediation processes, the session will also discuss advances in phytoremediation techniques for important toxicants at hazardous waste sites. For more information and to register, see <http://clu-in.org/studio> .

ITRC Environmental Management Planning on Active Small Arms Firing Ranges - January 26. The training uses a logic diagram to describe the appropriate steps an environmental professional or range manager should use to establish an operational understanding of a range and the impact it can have on the environment if left unattended. It assists the user to define the environmental characteristics at a range that could potentially impact the environment and lists the appropriate questions that range operators should ask when evaluating the potential for environmental impact. The training briefly describes a variety of new

and conventional technologies and techniques (i.e., best management practices) available to prevent environmental impact on the range. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/studio> .

New Documents and Web Resources

U.S. EPA Nanotechnology White Paper - December 2005

External Review Draft. This DRAFT document was produced by the EPA Science Policy Council. It describes the issues that EPA must address to ensure that society benefits from advances in environmental protection that nanotechnology may offer, and to understand any potential risks from environmental exposure to nanomaterials. Nanotechnology will have an impact across EPA (December 2005, 134 pages). The Agency will use the white paper to address research needs and risk assessment issues concerning nanotechnology. The draft white paper will undergo independent expert review, which will be conducted in the February 2006 time frame. Public comments will be accepted prior to the meeting of the external peer review panel. All comments received by January 31, 2006 will be shared with the external peer review panel for their consideration. To access the document and instructions to submit comments, see <http://www.epa.gov/osa/nanotech.htm> .

Scribe - Environmental Field Data Capture. Scribe is a software tool developed by the USEPA's Environmental Response Team (ERT) to assist in the process of managing environmental data. Scribe captures sampling, observational, and monitoring field data. Examples of Scribe field tasks include soil sampling, water sampling, air sampling and biota sampling. Scribe can import electronic data including Analytical Lab Result data (EDD) and sampling location data such as GPS. Scribe supports handheld extensions, Scriplets, to capture and import sampling and monitoring data collected on handheld PDAs. For more information, see http://www.ertsupport.org/scribe_home.htm .

Deployment of Phytotechnology in the 317/319 Area at Argonne National Laboratory-East (EPA/540/R-05/011).

This EPA report discusses the accomplishments of a phytotechnology system deployed by ANL-E in the 317/319 Area to reduce the risks from the VOCs and tritium. The EPA Superfund Innovative Technology Evaluation Program (SITE) and ANL-E evaluated the demonstration for a three-year period (1999-2002). The effectiveness of the various plantings was monitored directly through groundwater and soil measurements and samples, and indirectly via plant tissue analysis, microbial surveys, geochemical analysis, soil moisture probes and sap flow monitoring. ANL-E predicted physical effects of the plants

on groundwater using a standard hydrological model. The treatment period will continue for up to 20 years. This Innovative Technology Evaluation Report presents the results from sampling, monitoring, and modeling efforts to date. The project has demonstrated success in reducing contaminated groundwater flow and taking up contaminants at the source; it also provides insight into the techniques that are useful for measuring and predicting the effectiveness of future similar projects (December 2003, 88 pages). View or download at <http://www.epa.gov/ORD/NRMRL/pubs/540r05011/540r05011.pdf> .

Streamlined Remediation System Evaluation for a Ground Water Pump and Treat System for Chemko Technical Services, Inc. Facility (EPA 542-R-05-018) Streamlined Remediation System Evaluation for a Ground Water Pump and Treat System for Englehard Corporation Facility" (EPA 542-R-05-026) Two recent remedial system evaluations were completed and the recommendations captured. A Remedial System Evaluation involves a team of expert hydrogeologists and engineers, independent of the site, conducting a third-party evaluation of a ground water pump and treat system or other remedy of environmental contamination. It is a broad evaluation that considers the goals of the remedy, site conceptual model, above-ground and subsurface performance, and site exit strategy. The evaluation includes reviewing site documents, communicating with the site team, and compiling a report that includes recommendations to improve the efficiency and effectiveness of the remedy. Recommendations with cost and cost savings are provided in the following four categories: Improvements in remedy effectiveness; reductions in operation and maintenance costs; technical improvements; and gaining site close-out. To see these two studies and many others, see <http://clu-in.org/optimization> .

Technology News and Trends Newsletter: November 2005 (EPA 542-N-05-006) This EPA newsletter for environmental professionals features a combination of articles on innovative, in-situ technologies for the characterization and treatment of soil, sediment, and ground water. This issue features articles on ZVI permeable reactive barriers, approaches for the assessment of vapor intrusion, use of tree-core analysis in site assessments, and a report on the recent nanotechnologies workshop (November 2005, 6 pages). View or download at <http://clu-in.org/techpubs.htm> .

Conferences and Symposia

International Symposium on Site Characterization for CO₂ Geological Storage (CO₂SC 2006), Berkeley, CA, March 20-22.

This symposium is sponsored by EPA with the International Association of Hydrogeologists (IAH), American Institute of Hydrology (AIH), Ground Water Protection Council (GWPC), and International Association of Hydraulic Engineering and Research (IAHR). This symposium will address the particular issue of site characterization and site selection related to the geologic storage of CO₂, a proposed technological option to reduce atmospheric concentrations of CO₂. Presentations and discussions will cover various aspects associated with characterization and selection of potential CO₂ storage sites, with special emphasis on advances in process understanding, development of measurement methods, and identification of key site parameters. For registration and additional information see <http://esd.lbl.gov/CO2SC/>.

Reminder: Call for Abstracts! 2006 Community Involvement Conference and Training, Milwaukee, June 27-30. This U.S. EPA conference will offer participants original, engaging, and interactive presentations focusing on ways government can effectively interact with communities to achieve environmental results. Proposal abstracts are due January 18, 2006. For abstract instructions and a list of solicited topics, see <http://epa.gov/superfund/action/community/ciconference/2006/index.htm>.

Reminder: Call for Abstracts! International Conference on The Future of Agriculture: Science, Stewardship, and Sustainability, Sacramento, August 7-9, 2006. This conference is sponsored by EPA and the Midwest Hazardous Substance Research Center. It will address: success stories in the areas of: air quality, water quality, waste management, and environmental stewardship; linking promising research and lessons learned from EPA's Superfund Program and other arenas (state of the science) with on-the-ground agricultural activities (state of the practice). Abstracts for an oral presentation or a poster presentation are due March 1, 2006. For a complete list of presentation topics requested and abstract instructions, see <http://www.dce.ksu.edu/dce/conf/ag&environment/>.

NOTE: For TechDirect, we prefer to concentrate mainly on new documents and the Internet live events. However, we do support an area on CLU-IN where announcement of conferences and courses can be regularly posted. Currently there are 167 conferences and courses featured. We invite sponsors to input information on their events at <http://clu-in.org/courses>. Likewise, readers may visit this area for news of upcoming events that might be of interest. It allows users to search events by location, topic, time period, etc.

If you have any questions regarding TechDirect, contact Jeff Heimerman at (703) 603-7191 or heimerman.jeff@epa.gov. Remember, you may subscribe, unsubscribe or change your subscription address at <http://clu-in.org/techdrct> at any time night or day.