Message #106: December 2005

Welcome to TechDirect! Since the November 1 message, TechDirect gained 432 new subscribers for a total of 23,723. 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.

SERDP Solicitation Open

The DoD Strategic Environmental Research and Development Program (SERDP), will be funding environmental research and development. The objective of this effort it to identify, develop, and transition environmental technologies that relate directly to defense mission accomplishment. SERDP intends to fund multiple projects within each core thrust area. Projects will be selected through a competitive selection process. Because both government and private sector parties may compete for SERDP funds, there are two announcements for each solicitation. Proposals in the following areas are requested:

Environmental Restoration — innovative technologies for the detection, characterization, containment, and remediation of a wide range of contaminants in soil, sediments, and water.

Munitions Management — advanced geophysical sensor and signal processing technologies for the detection, discrimination, and remediation of Unexploded Ordnance (UXO) and technologies for range clearance and reduced generation of UXO.

Weapons Systems and Platforms — advanced alternative environmentally benign technologies and materials that reduce, control, or eliminate the waste and emissions associated with the manufacturing, maintenance, and use of DoD weapons systems and platforms.

Pre-proposals from the non-federal sector are due by Thursday, January 05, 2006. Proposals from the federal sector are due by Thursday, March 16, 2006. Detailed instructions for federal and private sector proposers are available on http://www.serdp.org/funding/index.cfm .

Internet Seminars

ITRC Site Investigation and Remediation for Munitions Response Projects - December 6. This training provides an introduction and overview of the processes, tools, and techniques used in investigation and remediation. These concepts are illustrated using an example munitions response site. Major steps in each process are identified and key regulatory considerations discussed. This training also identifies additional sources for more detailed information on key aspects of investigation and remediation. State regulators and others who need to understand the general processes involved in these critical aspects of the munitions response process will benefit from this training. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/studio .

ITRC Perchlorate: Overview of Issues, Status, and Remedial Options - December 8. There are an estimated 2,000 munitions-contaminated sites located in all 50 states and territories that may affect more than 10 million acres. State and tribal regulatory officials and community stakeholders are routinely required to evaluate DOD cleanup strategies with little, if any, environmentally oriented munitions response experience or guidance. State regulators are increasingly being charged with oversight responsibility for munitions response cleanup projects on other than operational ranges, such as formerly used defense sites (FUDS) and base realignment and closure (BRAC) sites. In addition, DOD project managers and industry will benefit from a greater understanding of state regulator expectations. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/studio . See related document, below.

The Basics: Understanding the Behavior of Light Non-Aqueous Phase Liquids (LNAPLs) in the Subsurface - December 12. This seminar provides a basic description of the behavior of LNAPLs (specifically, petroleum hydrocarbon liquids) in the subsurface. It is offered by the Remediation Technologies Development Forum (RTDF)/Non-Aqueous Phase Liquid (NAPL) Cleanup Alliance, a public-private partnership supported by the U.S. Environmental Protection Agency. Presenters begin by defining important terms to provide a foundation for discussing LNAPL behavior. They will explain how the general understanding of the behavior of LNAPL in

the subsurface has changed over the years. The presenters will discuss the effect of aquifer properties such as porosity, saturation, and capillary pressure and the effect of fluid properties - like viscosity, density, and interfacial and surface tension - impact LNAPL distribution and recovery. Presenters will introduce methods of predicting and evaluating LNAPL recovery, briefly discuss some assessment methods and techniques, and look at core photos taken from actual LNAPL plumes. Finally, five case studies will illustrate how the basic concepts conveyed in this training have been applied in the real world. For more information and to register, http://clu-in.org/studio .

ITRC Geophysical Prove-Outs for Munitions Response Projects - December 13. Geophysical systems are used to detect surface and subsurface anomalies, (i.e. unexploded ordnance (UXO) and/or discarded military munitions) during geophysical surveys of munitions response sites. These systems are tested, evaluated and demonstrated by a site-specific geophysical prove-out (GPO). Information collected during the implementation of the prove-out is analyzed and used to select or confirm the selection of a geophysical system that can meet the performance requirements established for the geophysical survey. http://www.itrcweb.org or http://clu-in.org/studio .

Documents and Web Resources

CLU-IN's New RSS Feed. CLU-IN's New RSS Feed. Want immediate notification when new items are added to CLU-IN? Interested in registering for our Internet Seminars as soon as they are available? CLU-IN regulars can now be notified when new content is posted by subscribing to our RSS feed. RSS is a form of web syndication and information aggregation. Instead of having to repeatedly browse websites for information of interest, this information is sent directly to you. CLU-IN's RSS feed provides headlines and short descriptions of new CLU-IN content with links to the full version. This happens when new content is loaded onto the site. Sound useful? Subscribe at http://www.clu-in.org/rss/ .

Groundwater Sampling and Monitoring with Direct Push Technologies (EPA 540-R-04-005). This EPA guidance document focuses on direct push technology (DPT) groundwater sampling issues. It addresses two groundwater sampling methods (i.e., point-in-time and grab sampling). The cost saving potential of DPT groundwater sampling technologies coupled with a rapid method of analysis, provides new defensible opportunities for making site decisions and an efficient project management tool for on-site activities. This guidance summarizes DPT groundwater sampling methods; the relevant data quality objectives; recommended

methods for collecting representative groundwater samples; and recommended methods for minimizing the potential for cross-contamination. It is intended for environmental professionals who have basic scientific understanding of groundwater sampling and DPT equipment and should be used with existing resources and initiatives that support the adoption of a dynamic field activity approach (August 2005, 78 pages). View or download at http://www.epa.gov/superfund/programs/dfa/dirtech.htm.

Understanding Procurement for Sampling and Analytical Services Under a Triad Approach (EPA 542-R-05-022). This report was published by the U.S. EPA Office of Superfund Remediation and Technology Innovation. Triad practitioners are developing a growing collection of information about the technical implementation of the Triad. Only limited information is available regarding the procurement of sampling and analytical services under a Triad framework. Specifically, the dynamic nature of this approach requires that Triad-specific procurement issues be addressed, namely providing the flexibility and adaptability during project implementation that are crucial to the success of the Triad and to allow for the thorough, up-front planning required by the approach. This document highlights methods and strategies that have been successfully used to procure services under a Triad framework. It includes examples and lessons learned from actual Triad projects implemented in the federal, state, local, and private sector arenas (June 2005, 63 pages). View or download at http://www.brownfieldstsc.org/pdfs/procurement.pdf or http://clu-in.org/techpubs.htm .

Perchlorate: Overview of Issues, Status, and Remedial Options (PERC-1). This document was published by the Interstate Technology and Regulatory Council (ITRC). It provides basic information regarding perchlorate and perchlorate contamination.. A variety of remediation technologies are currently commercially available and being used for perchlorate remediation. These remediation technologies fall into two broad categories-ion exchange and biological processes. The majority of these treatment technologies have been applied to remediation of groundwater; however, biological processes are also being applied to the remediation of soils. This document provides an overview of the commercially available technologies (and summaries of emerging technologies) still at the bench or pilot-scale stage (September 2005, 152 pages). View or download at http://www.itrcweb.org/Documents/PERC-1.pdf .

Overview of In Situ Bioremediation of Chlorinated Ethene DNAPL Source Zones (Bio-DNAPL-1). This document, published by the Interstate Technology and Regulatory Council (ITRC),

presents a technological overview of in situ bioremediation (ISB) and some of the issues to consider when selecting and designing an ISB system for remediation of chlorinated ethene dense nonaqueous phase liquids (DNAPLs) source zones. ISB is the use of bioaugmentation and biostimulation to create anaerobic conditions in groundwater and promote contaminant biodegradation for the purposes of minimizing contaminant migration and/or accelerating contaminant mass removal. Bioaugmentation is the addition of beneficial microorganisms into groundwater to increase the rate and extent of anaerobic reductive dechlorination to ethene. Biostimulation is the addition of an organic substrate into groundwater to stimulate anaerobic reductive dechlorination. ISB remediation may be implemented separately or in conjunction with other treatments designed to remediate DNAPLs in groundwater. ISB treatments generally involve modifications to the subsurface environment to accelerate biodegradation (October 2005, 89 pages). View or download at http://www.itrcweb.org/Documents/BioDNAPL-1.pdf .

Securing the Promise of Nanotechnology: Is U.S. Environmental Law Up To the Job? A Dialogue. This Environmental Law Institute report summarizes a May 25-26, 2005 Dialogue convened by the Woodrow Wilson International Center for Scholars Project on Emerging Nanotechnologies and the Environmental Law Institute entitled "Securing the Promise of Nanotechnology: Is U.S. Environmental Law Up To the Job?" The Dialogue brought together noted scientists, lawyers, and policymakers for purposes of examining how U.S. laws and regulations, as well as additional means of governance such as voluntary programs and industry standards, can be used effectively to address the environmental, health, and safety (EHS) implications of nanotechnologies. The forty invited participants included a diverse range of organizations, such as nanotechnology firms, environmental groups, research institutions, law firms and federal government agencies (October 2005, 53 pages). View or download at http://www2.eli.org/research/nanotech.htm . Hard copies also available at cost at that site.

Cost and Performance Report Nanoscale Zero-Valent Iron Technologies for Source Remediation (CR-05-007-ENV). This cost and performance report was published by the U.S. Naval Facilities Engineering Service Center. It is a compilation of technical and performance data from three recent Navy demonstration projects involving the use of microscale or nanoscale zero-valent iron (NZVI) for treatment of dense, nonaqueous-phase liquid (DNAPL) source zones. The Navy conducted considerable performance monitoring at the three sites and the key results are summarized in this report (September 2005, 54 pages). View or

download at http://clu-in.org/techpubs.htm .

A Review of Field Technologies for Long-Term Monitoring of Ordnance-Related Compounds in Groundwater (TR-05-14). This document was published by the U.S. Army Corps of Engineers. The report identifies and describes proven and promising sampling devices and onsite analytical instrumentation that potentially could be used now for LTM of ordnance-related compounds in groundwater. Instrumentation for LTM must provide rigorous qualitative as well as quantitative identifications. The following general categories of field analytical technologies applicable to volatile organic chemicals and organic ordnance-related chemicals are included in this report: water quality monitors associated with low-flow purge techniques, discrete interval samplers, immunoassay for detection of explosives, gas chromatography with liquid compatible inlets, mass spectrometry with liquid compatible inlets, ion mobility spectrometry with liquid compatible inlets, chemical sensors, and colorimetric technologies (September 2005, 60 pages). View or download at http://el.erdc.usace.army.mil/elpubs/pdf/trel05-14.pdf .

Collecting and Interpreting Soil Gas Samples from the Vadose Zone: A Practical Strategy for Assessing the Subsurface Vapor-to-Indoor Air Migration Pathway at Petroleum Hydrocarbon Sites (API 4741). This American Petroleum Institute publication discusses: soil gas transport, with emphasis on petroleum hydrocarbon vapors, and the expected soil gas profiles based on empirical analysis of existing data; the conceptual vapor-migration model; sampling locations, depths, and sampling frequency; monitoring installations and sample collection procedures; methods of soil gas analysis; and interpretation of soil gas data. Appendices include a site information checklist, worksheets for three typical scenarios that can be used for planning sampling locations, supporting information on analytical methods, and tools for data evaluation (November 2005, 106 pages). View or download at http://www.api.org/groundwater .

Conferences and Symposia

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 .

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 **190** 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.