TechDirect, March 1, 2007

Welcome to TechDirect! The March TechDirect kicks off the 11th year of service. We are unveiling a new design for the monthly TechDirect messages using HTML email. We hope that the new layout of each month's message makes it easier for you to locate new technical, policy and guidance resources that are relevant to you. Please feel free to comment with any feedback on this new design at http://clu-in.org/gbook.cfm . Since the February 1 message, TechDirect gained 387 new subscribers for a total of 27,482. 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 . 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.

TechDirect's purpose 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.

> Upcoming Live Internet Seminars

ITRC Real-Time Measurement of Radionuclides in Soil - March 6. This training introduces state regulators, environmental consultants, site owners, and community stakeholders to ITRC's Technology Overview document: Real-Time Measurement of Radionuclides in Soil: Technology and Case Studies (RAD-4, 2006), created by ITRC's Radionuclides Team. This training provides information on the basics of real-time measurement systems, how the technologies and data are used, acceptance issues, and case studies. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/studio .

Use of SADA for Spatial Analysis - March 9. Spatial Analysis and Decision Assistance (SADA; http://www.tiem.utk.edu/~sada/) is evolving freeware that incorporates tools from environmental assessment fields into an effective problem-solving environment. Robert Stewart, who leads the development of the software at the University of Tennessee, will focus this discussion on using SADA for spatial analysis. This seminar goes beyond the general SADA CLU-IN seminar (archived at: http://www.clu-in.org/conf/tio/sada_081506/) to show the specific capabilities of SADA for making decisions using correlation, interpolation, and probability; and the caveats for using these methods at hazardous waste sites. For more information and to register, see http://clu-in.org/studio .

Nanotechnology - DNAPL Remediation - March 15. The Superfund Basic

Research Program (SBRP), in collaboration with the Environmental Protection Agency (EPA), presents "Nanotechnology - DNAPL Remediation." In the last decade, the potential to use nanoparticles (particles This seminar will explore both the theoretical potential and practical challenges associated with the application of nanoscale particles for in situ remediation of DNAPLs. Matt Hull (Luna Innovations, Inc.) and Peter Vikesland (Virginia Tech) will present "Magnetite Nanoparticles for Remediation of Contaminated Groundwater." As part of their EPA SBIR collaboration, they have developed stabilized suspensions of nanoscale magnetite (Fe3O4) particles for the remediation of groundwater contaminated with carbon tetrachloride (CT). Greg Lowry (Carnegie Mellon University) will present "Functionalized Reactive Nanoscale Fe0 (NZVI) for in situ DNAPL Remediation: Opportunities and Challenges." Dr. Lowry will discuss the potential of surface-functionalized reactive Fe0 nanoparticles (NZVI) to overcome some of the challenges of DNAPL remediation. This is the third seminar in the Risk-e-Learning Series "Nanotechnology - Applications and Implications for Superfund." For more information and to register, see http://clu-in.org/studio .

ITRC Risk Assessment and Risk Management: Determination and Application of Risk-Based Values March 27. This training course describes the development and application of risk-based screening values. The first module provides a review of key risk assessment concepts related to risk management. The second module focuses on the process by which risk-based levels are derived in different states. The third module examines the application of risk assessment to remediation operations in two case studies providing examples of how risk assessment has actually been implemented, based upon research and case studies conducted by the ITRC Risk Assessment Resources team. This training course describes a number of the reasons behind variations in risk-based screening values and their use in risk management. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/studio .

> New Documents and Web Resources

FP7: Tomorrow's Answers Start Today. This document was produced by the European Commission. FP7 is the short name for the Seventh Framework Programme for Research and Technological Development. This is the EU's main instrument for funding research in Europe and it will run from 2007 to 2013. The EC budget for the next seven years is 50.5 billion euros and the Euratom budget for the next five years is 2.7 billion euros. FP7 is also designed to respond to Europes employment needs and competitiveness. The EU Framework Program 7 does envision collaboration on research and technology development between the EU and other nations. FP7 covers areas such as environment (including climate change), nanotechnology, renewable energy, and environmental technology verification and testing (2007, 32 pages). View or download at http://clu-in.org/techpubs.htm .

Nanotechnology White Paper (EPA 100-B-07-001). Nanotechnology presents new opportunities to improve how we measure, monitor, manage and minimize contaminants in the environment. New generations of nanomaterials will evolve and with them new and possibly unforeseen environmental issues. The purpose of this White Paper is to inform EPA management of the science issues and needs associated with nanotechnology, to support related EPA program office needs, and to communicate these nanotechnology science issues to stakeholders and the public (February 2007, 132 pages). View or download at http://www.epa.gov/osa/nanotech.htm .

Emerging Nanotechnologies for Site Remediation and Wastewater Treatment. This document was prepared by Katherine Watlington, a National

Network of Environmental Management Studies (NNEMS) grantee, under a fellowship from the U.S. Environmental Protection Agency. This paper seeks to provide a holistic view of the state of the science of nanotechnology. Both the commercialized nanotechnology products and many of the technologies being researched in academia are discussed. Attention is given both to the research itself as well as the remedial capabilities. The toxicity and safety concerns of the individual technologies are also briefly outlined as are the overall toxicity concerns related more generally to the field of nanotechnology. Finally the current state of regulation is addressed (August 2005, 55 pages). View or download at http://clu-in.org/techpubs.htm.

Innovations in Site Characterization Case Study: The Role of a Conceptual Site Model for Expedited Site Characterization Using the Triad Approach at the Poudre River Site, Fort Collins, Colorado (EPA 542-R-06-007). This case study examines how systematic planning, an evolving conceptual site model (CSM), dynamic work strategies, and real time measurement technologies can be used to unravel complex contaminant distribution patterns and design a remedy at the Cache La Poudre (Poudre) River site. The investigation and design of the remedy involved a former burn landfill, hydrocarbon fuel contamination, and mobile manufactured gas plant (MGP) coal tar waste. The remedy was driven by recreational reuse and proximity to the Poudre River. The remedy involved pathway elimination and stream restoration in a location central to the City of Fort Collins, Colorado (February 2007, 144 pages). View or download at http://clu-in.org/techpubs.htm .

Updated CLU-IN Vendor Support Area. The US EPA Technology Innovation Program announces the release of the newly revamped Vendor Support site, created to provide technology developers and vendors with tools to help advance technologies through all stages of product development from bench scale to full commercialization. The resources collected for this site cover a broad range of topics that include business planning, marketing, financing, and technical issues. Topics are organized into six sections arranged, approximately, in the order in which they are encountered in developing and commercializing a technology. Each section addresses a particular group of activities that lead to the advancement of a technology from the germination of an idea to research, development, testing, and finally to commercial application. For more information, see http://clu-in.org/vendor .

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. See http://www.eugris.info/DisplayNewsItem.asp?NewsID=400 to access the following documents. Look at the RESOURCES section under NEWS. More than 30 new resources, projects and news items were added to EUGRIS in February 2007. These include:

EU Country Fact Sheets on Waste Management. The fact sheets present general information on the legislative waste framework and waste management plans for each country. They also present more specific information on legislation, policies, instruments and data for the waste streams of municipal waste, biodegradable waste and tires. There are fact sheets available for 25 individual EU member countries. European Environment Agency 2007.

CL:AIRE Technical Bulletin 5: The Use of Geophysical Investigation Techniques in the Assessment of Contaminated Land and Groundwater. This bulletin describes the use of geophysical investigation techniques in the assessment of contaminated land and groundwater in the United Kingdom (January 2007, 4 pages).

CL:AIRE Technical Bulletin 12: Statistical Assessment of Contaminated Land: Some Implications of the Mean Value Test (Technical Bulletin 12) **Statistical methods are commonly used to guide decision-making in many**

regulatory contexts. For the assessment of potentially contaminated land, it is common practice to use the Mean Value Test approach defined in Appendix A of Contaminated Land Report 7 (DEFRA and Environment Agency, 2002). This bulletin suggests alternative techniques to reduce the risk of underestimating the true 95% Upper Confidence Limit of the sample mean (November 2006, 4 pages).

> Conferences and Symposia

The 2007 Conference on Design and Construction Issues at Hazardous Waste Sites, April 4 - 5, Philadelphia. This conference is hosted by the US EPA and the US Army Corps of Engineers. The conference will provide a forum for discussion between the private sector and the federal, state, local, and tribal governments regarding design and construction issues at hazardous waste sites, including effective methods, lessons learned, application of technologies, and field approaches. For registration and agenda information, see http://hq.environmental.usace.army.mil/rdra-07 .

Call for Papers! US EPA/NGWA Conference on Remediation in Fractured Rock, September 24-26 Portland, Maine. The event is the third in a series of international consortiums to highlight innovative remediation and monitoring technologies for contaminated sites in fractured rock settings. The conference features 10 invited speakers, platform and poster sessions, four panel discussions, remediation technology and geophysics workshops, industry display area, and a field trip. Accepted papers shall be published in a full proceeding. The last meeting in Portland had 600 attendees. The deadline for abstract submissions is April 10. To learn more and submit your abstract, see http://www.ngwa.org/e/conf/0709245017.cfm .

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 135 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.