



U.S. ENVIRONMENTAL PROTECTION AGENCY

## TechDirect, February 1, 2008

Welcome to TechDirect! Since the January 1 message, TechDirect gained 341 new subscribers for a total of 30,038. 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.

### TIP's News Corner:

- [Courses & Conferences](#)
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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.

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### > Open Solicitation

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**ESTCP FY 2009 SEED Solicitation.** The Department of Defense (DoD), through the Environmental Security Technology Certification Program (ESTCP), is seeking innovative environmental technology demonstrations as candidates for funding beginning in Fiscal Year (FY) 2009. This solicitation requests pre-proposals via Calls for Proposals to DoD organizations and Federal (Non-DoD) organizations, and via a Broad Agency Announcement (BAA) for Private Sector organizations. ESTCP is seeking proposals from Non-DoD Federal organizations for environmental technologies in the following topics only: 1) Remediation of Contaminated Groundwater; 2) In Situ Remediation of Contaminated Sediments; 3) Characterization, Control, and Treatment of Range Contamination; 4) Military Munitions Detection, Discrimination, and Remediation; 5) Control of Non-Native Invasive Species on Department of Defense Lands and Waters; and 6) Energy Efficiency and Renewable Energy for DoD Installations. Pre-proposals are due by Thursday, March 13, 2008. Information about the solicitation and instructions for submitting proposals are available at <http://www.estcp.org/opportunities/>.

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### > Upcoming Live Internet Seminars

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**Characterizing Mass Transfer and Mass Flux for DNAPL Source Zones - February 5.** To accurately assess the human health risks associated with DNAPLs in the

subsurface, and to design effective remediation systems for such contamination, it is essential to understand contaminant mass-transfer and mass flux behavior associated with DNAPL source zones. The contaminant mass flux or mass discharge emanating from a source zone, also referred to as the source strength or source function, is a primary determinant of the risk associated with a contaminated site. Concomitantly, the reduction in mass flux achieved with a specific level of source-zone mass removal (or mass depletion) is a key metric for evaluating the effectiveness of a source-zone remediation effort. Thus, there is great interest in characterizing, estimating, and predicting relationships between mass flux reduction and mass removal. The nature of the relationship between mass flux reduction and mass removal will be mediated by the properties and distribution of the porous medium and of the DNAPL (source-zone architecture), and their resultant impacts on the pore-water velocity field and mass-transfer dynamics. In addition, the relationship between mass flux reduction and mass removal may change with time due to temporal changes in source-zone architecture and mass-transfer dynamics (i.e., source-zone aging). Furthermore, the mass-flux-reduction/mass removal relationship may be affected by source-zone remediation efforts. These issues will be illustrated using the results of studies spanning a range of spatial and temporal scales. For more information and to register, see <http://clu-in.org/studio>.

**Community Action for a Renewed Environment (CARE) National Webcast for the 2008 Request for Proposal - February 11 and 27.** This webcast is an opportunity for potential applicants to the CARE cooperative agreement program to learn more about and ask questions about the Request for Initial Proposals that was issued in December 2007. Visit [www.epa.gov/CARE](http://www.epa.gov/CARE) for more information on the CARE program. To register, see <http://clu-in.org/studio>.

**ITRC Protocol for Use of Five Passive Samplers - February 21.** This training supports the understanding and use of the ITRC Protocol for Use of Five Passive Samplers to Sample for a Variety of Contaminants in Groundwater (DSP-5, 2007). The five technologies included in this document include diffusion samplers, equilibrated grab samplers; and an accumulation sampler. The training starts with information common to all five samples then focuses on each sampler as instructors describe the sampler and explain how it works; discuss deployment and retrieval of the sampler; highlight advantages and limitations; and present results of data comparison studies. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/studio>.

**ITRC Performance-based Environmental Management - February 26.** Performance-based environmental management (PBEM) is a strategic, goal-oriented methodology that is implemented through effective planning and decision logic to reach a desired end state of site cleanup. The goal of PBEM is to be protective of human health and the environment while efficiently implementing appropriate streamlined cleanup processes. This ITRC training presents an overview of what PBEM is, explains how and when to implement it, and describes the issues that regulators are concerned about throughout PBEM's implementation. Case studies will be presented to illustrate successful PBEM projects. The course is valuable not only because PBEM is being proposed and implemented at many federal and private sites throughout the country, but also because PBEM provides an opportunity to enhance all site remediation. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/studio>.

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## > New Documents and Web Resources

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### **A Systematic Approach for Evaluation of Capture Zones at Pump and Treat**

**Systems (EPA 600-R-08-003).** This document was published by the U.S. EPA Office of Research and Development. It describes a systematic approach for performing capture zone analysis associated with ground-water pump and treat (P&T) systems. This analysis is meant to determine the zone of hydraulic control of a P&T system. The intended audience for this document is technical professionals that actually perform capture zone analyses (i.e., hydrogeologists, engineers) as well as project managers who review those analyses and/or make decisions based on those analyses (January 2008, 166 pages). View or download at <http://www.epa.gov/ada/pubs/reports/600R08003.html> .

**Groundwater Monitoring Network Optimization, Frontier Hard Chrome Superfund Site, Vancouver, Washington (EPA 542-R-07-021).** This report reviews and provides recommendations for instituting a long-term groundwater monitoring network for Frontier Hard Chrome (FHC) Superfund Site in Vancouver, Washington. The FHC Site is a former chrome plating facility in the floodplain of the Colombia River. The current FHC groundwater monitoring network has been evaluated using a formal qualitative approach as well as statistical tools found in the Monitoring and Remediation Optimization System software (MAROS). Recommendations are made for groundwater sampling frequency and location based on current hydrogeologic conditions and long-term monitoring goals for the system. The primary goal of developing an optimized groundwater monitoring strategy at the FHC Site is to create a dataset that fully supports site management decisions while minimizing time and expense associated with collecting and interpreting data (December 2007, 101 pages). View or download at <http://clu-in.org/techpubs.htm> .

**Recommendations from the EPA Ground Water Task Force (EPA 500-R-07-001).** The Recommendations from the EPA GWTF are the result of a three-year effort that was established under the Office of Solid Waste and Emergency Response's (OSWER) One Cleanup Program Initiative. The goal of the GWTF was to identify, prioritize, and make recommendations for ground water issues that will benefit multiple ground water cleanup and protection programs. The report focuses on two topics the GWTF selected for evaluation: cleanup goals appropriate for dense non-aqueous phase liquid source zones; and, ground water use, value, and vulnerability as factors in setting cleanup goals. It includes background information, options, and GWTF recommendations to address identified issues. The cover letter of the report includes the recommendations the EPA OSWER is currently pursuing (December 2007, 82 pages). View or download at <http://clu-in.org/techpubs.htm> .

**Monitored Natural Attenuation of Inorganic Contaminants in Ground Water, Volumes 1 & 2.** Understanding site characterization to support the use of monitored natural attenuation (MNA) for remediation of inorganic contaminants in ground water can expand the potential for incorporating MNA into a remediation strategy. The release of Volumes 1 and 2 of a 3-volume set provides technical recommendations regarding the development of conceptual site models and site characterization approaches useful for evaluating the effectiveness of the natural attenuation component of remedial actions for ground water affected by arsenic, cadmium, chromium, copper, lead, nickel, nitrate, perchlorate, or selenium. These volumes are intended for use as technical references in conjunction with other documents, including OSWER Directive 9200.4-17P, Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (<http://www.epa.gov/swerst1/directiv/d9200417.pdf>). Volume 3, for which release is pending, will contain separate chapters for americium, cesium, cobalt, iodine, plutonium, radium, strontium, radon, technetium, thorium, tritium, and uranium. View or download Volume 1 (EPA 600-R-07-139, October 2007, 94 pages) at <http://www.epa.gov/ada/pubs/reports/600R07139.html> and Volume 2 (EPA 600-R-07-140, October 2007, 124 pages) at <http://www.epa.gov/ada/pubs/reports/600R07140.html> .

**Decontamination and Decommissioning of Radiologically Contaminated Facilities (RAD-5).** This report was produced by the Interstate Technology and

Regulatory Council (ITRC). It compiles and makes available some of the experience and knowledge acquired in recent years from facilities that have completed a D&D process. It provides guidance on D&D to regulators, the public, project managers, cleanup contractors, technology providers, and others with an interest or a need for information about this topic. The document introduces D&D by describing the general D&D processes, examining the types of facilities undergoing D&D, and introducing regulatory authorities typically applicable to D&D activities. Subsequent sections further address major elements of the D&D undertaking - the regulatory framework (discussing the decommissioning requirements of the Nuclear Regulatory Commission, the Environmental Protection Agency, and DOE), costs, technologies, and health and safety. The document summarizes case studies of select closure sites, where some of the potential problems and decisions involved in the D&D process are explored. In addition, stakeholder perspectives on the D&D process are included. The document concludes by providing a distillation of lessons learned and factors for success of D&D process that the ITRC Radionuclides Team compiled (January 2008, 207 pages). View or download at <http://www.itrcweb.org/Documents/RAD5.pdf> .

**Technology News and Trends (EPA 542-N-08-001).** This issue highlights strategies for remediating sites with inorganic contaminants and radionuclides. Enhanced research has led to increased use of bioremediation as a viable technology for removing or transforming inorganic contaminants. Due to the length of time needed to address radionuclide contamination, research also focuses on the potential for monitored natural attenuation (MNA) to complement aggressive cleanup technologies (January 2008, 6 pages). View or download at <http://clu-in.org/techpubs.htm> .

**Biosolids Recycling: Restore, Reclaim, Remediate (Video).** Sewage treatment results in wastewater being recycled to the environment, but the solids removed from wastewater can also be processed and turned into a nutrient rich fertilizer. Today's primary use of this fertilizer is to restore overworked agricultural soils, but research by the USDA and the USEPA/ERT has now opened the way for use of biosolids to reclaim lands destroyed by mining. View or download video at <http://www.clu-in.org/studio/biosolids.cfm> .

**Our Land, Our Legacy: The Resource Conservation and Recovery Act (Video).** This video documents the remarkable results that can occur when we clean up sites in a way that not only protects human health and the environment, but also supports reuse. View or download video at [http://www.clu-in.org/studio/rcra\\_dvd.cfm](http://www.clu-in.org/studio/rcra_dvd.cfm) .

**Measurement & Monitoring: 25th Quarterly Literature Update.** The Monitoring and Measurement 25th quarterly update of literature contains new citations related to DNAPL characterization techniques; monitoring mining waste sites; sensor technology development; vapor intrusion monitoring methods; test methods for dioxin, cyanide, mercury, pesticide, perchlorate, MTBE, and emerging contaminants; and remote sensing for a variety of applications (December 2007, 67 pages). See <http://clu-in.org/21m2> .

**EUGRIS Corner.** New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 37 resources, events projects and news items were added to EUGRIS 1 - 24 January, 2008. These can be viewed at <http://www.eugris.info/whatsnew.asp>. Then select the appropriate month and year for the updates in which you are interested. The following reports were featured on EUGRIS:

**Effects of Sewage Sludge Applications to Agricultural Soils on Soil Microbial Activity and the Implications for Agricultural Productivity and Long-Term Soil Fertility - Phase III.** The project was jointly funded by the UK Department for Environment, Food and Rural Affairs (Defra), the Environment Agency (EA), the Welsh Assembly Government (WAG), UK Water Industry Research Limited (UKWIR) and the Scottish Executive Environment and Rural Affairs Department (SEERAD). This report summarizes research progress during Phase III (2002-2006) of a long-term series of

field experiments evaluating the effects of sewage sludge applications to agricultural soils on soil microbial activity and the implications for agricultural productivity and long-term soil fertility at nine sites in Britain. (October 2007, 148 pages). View or download at [http://randd.defra.gov.uk/Document.aspx?Document=SP0130\\_6505\\_FRP.pdf](http://randd.defra.gov.uk/Document.aspx?Document=SP0130_6505_FRP.pdf) .

**An Introductory Guide to Valuing Ecosystem Services (PB12852).** This report was produced by the UK Department of Environment, Food and Rural Affairs. It looks at how the framework for the valuation of the natural environment could be improved by offering a comprehensive and systematic means to ensuring that ecosystems and the services they provide are taken into account in policy appraisal. It builds on traditional valuation approaches by explicitly considering the environment as a whole bringing together land, water, air, soil and biodiversity and recognizing that their linkages provide a wide variety of services and benefits that are not specific to any one part. The approach stresses that changing any one part of our environment can have consequences, both positive and negative, and often unintended for the ecosystem as a whole (December 2007, 68 pages). View or download at [http://www.defra.gov.uk/wildlife-countryside/natres/pdf/eco\\_valuing.pdf](http://www.defra.gov.uk/wildlife-countryside/natres/pdf/eco_valuing.pdf) .

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## > Conferences and Symposia

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**EPA Workshop for Federal USTs, Seattle, WA, February 12-13.** The U.S. Environmental Protection Agency is hosting a free, day and a half workshop for the federal facility community. The Energy Policy Act of 2005 included substantial revisions to the Underground Storage Tank (UST) requirements found in Subtitle I of RCRA. One of the major changes to the UST program resulting from the Energy Policy Act involved periodic regulatory inspections, which are now to be conducted on a three year cycle. Recent inspections of federal facilities by EPA have found compliance problems not only with USTs, but also with above ground storage tanks (ASTs). Therefore, EPA's Federal Facilities Program is hosting this workshop as a refresher on federal tank requirements. For more information and to register, see <http://www.fedcenter.gov/training/ust/> .

**2008 Conference on Design and Construction Issues at Hazardous Waste Sites, Philadelphia, April 24-25.** This conference is hosted by the USEPA and the US Army Corps of Engineers. It will provide a forum for discussion among professionals from the private and public sectors regarding design and construction issues at hazardous waste sites including current approaches, management techniques, lessons learned, and application of technologies. For more information or to register please see the conference website at <https://superfund.usace.army.mil/2008DCHWS> .

**Triad Investigations: New Approaches and Innovative Strategies, Amherst, MA, June 10-13.** The June 2008 National Conference Triad Investigations: New Approaches and Innovative Strategies will feature three full days of conference presentations, Triad training sessions, specialized workshops, an interactive tool room, field equipment demonstrations, exhibitor hall, poster sessions, and an array of networking opportunities. The Conference will include training sessions, platform sessions, and specialized workshops focused on implementation of new tools, approaches, and strategies for hazardous waste site characterization, site remediation, and site redevelopment. The conference also will feature new tools and techniques for sampling and monitoring related to real-time information, continuous monitoring, and long-term monitoring for site closure and stewardship. Best practices and lessons learned will be emphasized throughout the training sessions, platform sessions, and workshops. For more information and to register, see <http://www.umass.edu/tei/conferences/triad.html>

**Call For Abstracts! International Environmental Nanotechnology Conference: Applications and Implications, Chicago, IL, October 7-9.** Nanomaterials present new opportunities to improve our ability to detect, monitor, control, and clean up environmental pollutants and contaminants and potential new risks to human health and the environment. Plan now to attend the 2008 International Environmental Nanotechnology Conference: Applications and Implications in Chicago. The U.S. Environmental Protection Agency (EPA) Region 5 Office, Office of Superfund Remediation and Technology Innovation, and Office of Research and Development are partnering with a variety of agencies and organizations to host the conference. The conference will bring together researchers and practitioners from around the world to discuss the nanotechnology applications for remediation of environmental contaminants; the implications of releasing manufactured nanoparticles into the environment, and pollution control and nano-enabled sensing. The call for abstracts expires May 1. To see the Call for Abstracts and get more information about the conference, visit <http://emsus.com/nanotechconf/index.htm> .

**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 142 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](mailto: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.

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