

TechDirect, August 1, 2008

Welcome to TechDirect! Since the July 1 message, TechDirect gained 260 new subscribers for a total of 31,309. 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.

> Open Solicitations

EPA & National Science Foundation (NSF) Small Business Innovation Research Opportunities in Environmental Technologies. The Environmental Protection Agency (EPA) SBIR Phase I Solicitation is now closed and the next SBIR solicitation will open in March 2009. However, there are nearer term opportunities for SBIR funding of environmental technologies in the National Science Foundation (NSF) SBIR Phase I Solicitation closing on December 4, 2008. Nearly all of EPA's technology needs have significant synergy with this NSF Solicitation. More information and a link to the NSF Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs are available at <http://www.clu-in.org/techpubs.htm>.

NIST-Technology Innovation Program Announces Competitive R&D Proposal Funding Opportunity. The Commerce Department's National Institute of Standards and Technology (NIST) announced that it is seeking proposals for high-risk research projects to develop innovative technologies for inspecting, monitoring and evaluating critical components of the nation's roadways, bridges, and drinking and wastewater systems. The competition for cost-shared research and development (R&D) support is the first to be announced by NIST's newly established Technology Innovation Program (TIP) in an effort to address critical societal challenges. Proposals for the current TIP competition must be received by NIST by 3 p.m. EDT, Thursday, September 4, 2008. Review, selection, and award processing is expected to be completed by the end of November 2008. More information and a proposal preparation kit are available at http://www.nist.gov/tip/comp08_apply.html.

> Upcoming Live Internet Seminars

X-ray Fluorescence (XRF) Seminar Series - August 4, 7, 11, 14, 18, 21, 25, 28. This 8-part internet seminar series covers material that generally is not presented in XRF presentations or training courses. This is an applications course: how can a FP-XRF be used so that its data are highly dependable and defensible. Sampling design and sample handling options for FP-XRF will be covered, along with the benefits and

limitations of each. Analytical and QC concerns common to using XRF are also discussed. This course will be of interest to staff developing XRF sampling and analysis plans, reviewing the plans for quality assurance, field operators, and users of XRF data for making project decisions. Concepts and practice will be illustrated using experiences from actual field projects. The capabilities of newer FP-XRF instruments will be described. Participants may register for any session of interest, but are highly encouraged to attend all 8 sessions for the full benefit of the course. For more information and to register, see <http://clu-in.org/studio> .

ITRC Decontamination and Decommissioning of Radiologically-Contaminated Facilities - August 5. This training introduces ITRC's Technical/Regulatory Guidance, Decontamination and Decommissioning of Radiologically-Contaminated Facilities (RAD-5, 2008), created by ITRC's Radionuclides Team. The curriculum is composed of four modules: Introduction and Regulatory Basis for Decontamination and Decommissioning (D&D), Factors for Implementing D&D, Preliminary Remediation Goal (PRG) Calculators, and Case Studies and Lessons Learned. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/studio> .

Recycling Regulations and All That - August 12. This session will provide participants information on hazardous waste recycling issues. Recycling determinations have always been open for wide differences in interpretations. The discussion will be geared to the federal regulations with the understanding that authorized states can be and often are more restrictive or have differing interpretations. Areas to be discussed include the importance of making correct solid waste determinations from CFR Part 261 Table 1, separate solid waste exclusions, separate hazardous waste exclusions, scrap metal, and other more esoteric recycling issues. There will be some time to discuss recycling cases. For more information and to register, see <http://clu-in.org/studio> .

Understanding the EPA Brownfields Proposal Guidelines - August 13 and September 15. The EPA Region 8 Grant Writing Workshop is designed to assist local governments, tribes and nonprofit organizations to better understand the proposal criteria and selection process for EPA's Brownfields Assessment, Cleanup and Revolving Loan Fund grants. EPA Region 8 is comprised of communities in Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming, and 27 tribal nations. Major workshop agenda topics will include: What are the different grant types EPA provides for brownfields?; Who is eligible to apply?; What is the grant application process?; What are threshold and ranking criteria and how have they changed this year?; What makes a good application?; and grant writing tips. For more information and to register, see <http://clu-in.org/studio> .

ITRC Performance-based Environmental Management - August 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> .

Treatment of Heavy Metals and Elimination of Sulfur with a Novel Sulfate Reducing Permeable Reactive Barrier Containing ZVI - August 27. Acid mine drainage and acid rock drainage contain sulfuric acid together with heavy metals. Biological treatment often relies on sulfate reducing bacteria, which use organic

electron donating substrates to enable bacteria to reduce sulfate to sulfide.

Subsequently, sulfides precipitate heavy metals. However, excess sulfides are released from the treatment system, so the process is not very effective in removing sulfur. Excess sulfides have oxygen demand, are corrosive and malodorous. A process developed at the University of Arizona uses zero valent iron (ZVI) either alone or mixed with organic substrates. The main advantage of using ZVI is that ferrous iron (Fe²⁺) released from its corrosion will precipitate sulfides formed by sulfate reduction, thereby avoiding the discharge of excess sulfides from the barrier system. For more information and to register, see <http://clu-in.org/studio>.

Using High-resolution Piezocone to Determine Hydraulic Parameters and Mass Flux Distribution - August 27. This seminar will cover the results of an ESTCP-funded (www.estcp.org) demonstration of the use of the high-resolution piezocone direct push sensor probe to determine direction and rate of ground water flow in three dimensions. Field hydraulic measurements can be used to determine seepage velocity distributions through interpolation methods recently incorporated into Groundwater Modeling System. Probe data comprised of soil type and co-located hydraulic information is particularly amenable to innovative data fusion based interpolations available through the modeling platform. Following chemical concentration data collection, these innovative data processing approaches allow for the determination of flux distributions at resolutions and spatial configurations never before available. Field scale data collection, interpolation, and modeling results will be presented and discussed. The final technical report for the ESTCP demonstration can be found at <http://www.estcp.org/Technology/upload/ER-0421-FR.pdf>. For more information and to register, see <http://clu-in.org/studio>.

A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems - September 11 and October 8. This seminar presents a systematic approach for the evaluation of capture zones at pump and treat systems, and provides an overview of a recently published USEPA document on the topic (EPA 600/R-08/003, January 2008). The target audience is project managers who review those analyses and/or make decisions based on these types of analyses. This course will highlight: the importance of capture zone analysis during ground water remediation, particularly for sites requiring containment; key concepts of capture, such as "target capture zones" and "converging lines of evidence;" and typical errors made in capture zone analysis. Examples will be used to demonstrate key aspects of capture zone analysis. For more information and to register, see <http://clu-in.org/studio>.

> New Documents and Web Resources

In Situ Bioremediation of Chlorinated Ethene: DNAPL Source Zones (BioDNAPL-3). This publication systematically lays out the technical and related regulatory considerations for in situ bioremediation (ISB) of chlorinated ethene dense DNAPL source zones, providing information related to site characterization requirements, treatment system application and design criteria, process monitoring, and process optimization. The ability of ISB technology to enhance the dissolution and desorption of nonaqueous-phase contaminants to the aqueous phase, where they can be degraded by the microbial population, depends on the spatial distribution of DNAPL mass in the subsurface (e.g., pool/ganglia ratio) and the ability to deliver amendments throughout this architecture (June 2008, 138 pages). View or download at http://www.itrcweb.org/Documents/bioDNPL_Docs/BioDNAPL3.pdf.

User's Guide to the Collection and Analysis of Tree Cores to Assess the Distribution of Subsurface Volatile Organic Compounds. Analysis of the volatile

organic compound content of tree cores is an inexpensive, rapid, and simple approach to examining the distribution of subsurface volatile organic compound contaminants. The method has been shown to detect several volatile petroleum hydrocarbons and chlorinated aliphatic compounds associated with vapor intrusion and ground-water contamination. Tree cores, which are approximately 3 inches long, are obtained by using an increment borer. The cores are placed in vials and sealed. After a period of equilibration, the cores can be analyzed by headspace analysis gas chromatography. Because the roots are exposed to volatile organic compound contamination in the unsaturated zone or shallow ground water, the volatile organic compound concentrations in the tree cores are an indication of the presence of subsurface volatile organic compound contamination. Thus, tree coring can be used to detect and map subsurface volatile organic compound contamination. (July 2008, 72 pages). View or download at <http://pubs.usgs.gov/sir/2008/5088/> .

Technology News and Trends (EPA 542-N-08-004). This issue highlights innovative approaches to remediate and reclaim former mining sites and larger areas impacted by abandoned mining sites. Environmental problems associated with mine-scarred lands include revegetation difficulties, waste piles or dumps contributing to metal-loading in surface water, and acid mine drainage (AMD) deteriorating regional surface and ground water quality (July 2008, 6 pages). View or download at <http://clu-in.org/techpubs.htm> .

Approach to Vapor Intrusion at Contaminated Dry Cleaner Sites: A Survey of Member States. Contaminant movement into buildings due to vapor migration from volatile organic chemical (VOC) contamination in soil and groundwater has become a significant concern to the public, business and regulatory agencies. Dry cleaning operations use a number of VOCs that, if released to the soil and groundwater, can lead to vapor migration into buildings and pose a health threat to people. This paper summarizes responses to a short survey conducted in 2007 regarding how State Coalition for Remediation of Drycleaners (SCRD)-represented states approach vapor migration investigation, mitigation, and site closure at contaminated drycleaner properties. The survey is intended to begin a dialogue regarding state approaches to vapor migration at drycleaners (August 2008, 10 pages). View or download at http://www.drycleancoalition.org/download/SCRD_VI_2008.pdf .

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 41 resources, events projects and news items were added to EUGRIS 1 - 24 July, 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:

CL:AIRE (2008) Technology Demonstration Project Bulletin 26 (TDP 26 Bulletin): In Situ Soil and Groundwater Decontamination Using Electric Resistive Heating Technology (Six-Phase Heating). This bulletin describes the UK's first use of Six-Phase Heating (SPH), an in situ electrical resistive heating technology, to mitigate the risk posed by historic contamination of the former tools manufacturing site in Sheffield by source removal. The demonstration has passed through CL:AIRE's peer review system and is a CL:AIRE Technology Demonstration Project (TDP 26). View or download at http://www.claire.co.uk/index.php?option=com_docman&task=cat_view&qid=930&Itemid=25 .

CL:AIRE (2008) SUBR:IM Bulletin 10 (SUB 10): The Use of Compost in the Regeneration of Brownfield Land. This end user guide is a product of two work-packages of the Sustainable Urban Brownfield: Integrated Management (SUBR:IM) research consortium. The research of work-package F on integrated remediation and greening of urban greenspace examined the use of compost for the establishment of plant growth on remediated soils. This research was conducted at Forest Research. The research of work-package K focused on the development of novel compost for

the remediation of metal contaminated land. This research was conducted at the University of Surrey, University of Cambridge and Forest Research. View or download at http://www.claire.co.uk/index.php?option=com_docman&task=cat_view&qid=19&Itemid=25

> Conferences and Symposia

Environmental Measurement Symposium, Washington, DC, August 11-15, 2008.

This symposium will combine the National Environmental Monitoring Conference (NEMC) and the Forum on Laboratory Accreditation (the Forum). The NEMC, www.nemc.us, brings together scientists and managers from federal and state agencies, the regulated community, and laboratory and engineering support communities. It includes technical sessions, training courses, exhibits, and networking opportunities. The Forum, www.nelac-institute.org, consists of meetings of a number of committees of The NELAC Institute (TNI). The 2008 Symposium will include keynote speakers on Elemental Speciation in Environmental Monitoring, Nanotechnology, Laboratory Accreditation, and International Health Issues. Furthermore, 16 technical breakout sessions will cover such topics as metals speciation, homeland security, the performance approach, field measurements and organic and inorganic methods, NEMC 2008 will have three special sessions: Updates on Key EPA programs; Analytical Capability Needs of the Future; and Future Trends in Environmental Monitoring and with a technical program featuring over 100 technical presentations. For more information, please visit http://www.nemc.us/nemc_2008/index.html

Vapor Intrusion Pathway: A Practical Guideline: ITRC 2-day Classroom Training, Portland, OR, October 7-8, 2008. Led by internationally recognized experts, this 2-day ITRC classroom training will enable you to learn the latest strategies to conduct site screening and investigations; determine what tools are appropriate to collect quality data and evaluate the results; apply multiple lines of evidence to ensure quality decision-making; build solutions for VI issues through understanding of mitigation options; and network with environmental professionals dealing with this interdisciplinary and complex pathway. Interactive learning with hands-on exhibits, classroom exercises, and frequent Q&A sessions will reinforce these course objectives and contribute to a practical understanding of this difficult pathway. For more information and to register, see <http://www.itrcweb.org/crt.asp> OR <http://www.regonline.com/ITRC-VI-OR> .

Registration Reminder!! International Environmental Nanotechnology Conference: Applications and Implications, Chicago, IL, October 7-9, 2008. This important conference is sponsored by the U.S. Environmental Protection Agency, the Agency for Toxic Substances and Disease Registry (ATSDR), the National Science Foundation, U.S. Department of Energy (DOE), U.S. Army, U.S. Navy, National Institutes of Health - National Institute of Environmental Health Sciences (NIEHS), and the University of Illinois at Chicago. The conference will bring together nanotechnology experts from Australia, France, Ireland, Japan, Korea, The Netherlands, the United Kingdom, and the United States to discuss nanotechnology applications for remediation of environmental contaminants; the implications of releasing manufactured nanoparticles into the environment, and pollution control and nano-enabled sensing. More information and registration are available at <http://www.emsus.com/nanotechconf/> .

Call for Abstracts!! Emerging Contaminants 2008 Symposium, San Jose, CA, November 19-20, 2008. Emerging chemical contaminants present numerous technical and institutional challenges to society and to environmental and public health professionals. Increasingly sensitive analytical techniques have detected the presence of previously unregulated chemicals in actual or potential sources of drinking water. In some cases, the impacts of these chemicals to human health and the environment are

uncertain. Many of the emerging chemicals remain unregulated, but the number of regulated contaminants will continue to grow slowly over the next several decades. This one and a half day event will profile the latest developments in detection, risk assessment, remediation and regulation of emerging contaminants in groundwater. Experts from academia, regulatory agencies, consulting, industry, and the legal arena will participate in moderated speaker sessions, poster sessions, and round-table panel discussions. The deadline for submitting an abstract is August 10, 2008. More information and the call for abstracts are available at <http://www.grac.org/contaminants.asp> .

Call for Abstracts!! International Conference on the Environmental Implications and Applications of Nanotechnology, Amherst, MA, June 9-11, 2009. The UMass Environmental Institute and U.S. EPA are organizing an International Conference on the Environmental Implications and Applications of Nanotechnology at the University of Massachusetts Amherst June 9-11 2009. Abstracts are being sought for platform and poster presentations that address the full range of environmental implications and applications of manufactured nanomaterials and nanotechnology, from state-of-the-art research to emerging technologies to full-scale case studies. Topics of interest include Characterization, Detection, and Analysis; Green Nanotechnology; Nano Regulatory and Policy Issues; Environmental Fate and Transport; Bioavailability, Toxicity, and Exposure; Pollution Control and Remediation. All conference papers will be considered for publication in the UMass open access online journal, International Journal for Soil, Sediment and Water. Abstracts are due by November 1, 2008 (platform presentations) or by April 30, 2009 (poster presentations). More information and the call for abstracts are available at http://www.umass.edu/tei/conferences/NanoConference/Call_for_Abstracts.html .

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 245 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.

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