



TechDirect, May 1, 2012

Welcome to TechDirect! Since the April 1 message, TechDirect gained 233 new subscribers for a total of 31,521. 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.



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 Use and Measurement of Mass Flux and Mass Discharge - May 3, 2012, 11:00AM-1:15PM EDT (15:00-17:15 GMT). The ITRC technology overview, Use and Measurement of Mass Flux and Mass Discharge (MASSFLUX-1, 2010), and associated Internet-based training provide a description of the underlying concepts, potential applications, description of methods for measuring and calculating, and case studies of the uses of mass flux and mass discharge. This Technology Overview, and associated Internet-based training are intended to foster the appropriate understanding and application of mass flux and mass discharge estimates, and provide examples of use and analysis. The document and training assumes the participant has a general understanding of hydrogeology, the movement of chemicals in porous media, remediation technologies, and the overall remedial process. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

Superfund Research Program Sediment Bioavailability Assays - Kick-off Webinar Featuring New Research Projects - May 7, 2012, 3:00PM-5:00PM EDT (19:00-21:00 GMT). This webinar will be comprised of 5 short presentations from the Superfund Research Program Individual Research Grants (R01). The NIEHS Superfund Research Program (SRP) released a funding opportunity announcement in 2010 titled RFA ES-11-005 "Innovative Bioavailability Assays to Assess the Effectiveness of Contaminated Sediment Remediation (R01)." This solicitation called for the development of innovative assays of bioavailability that may be used to determine the effectiveness of sediment remediation in reducing risks to humans. The ultimate goals of this solicitation are two-fold: first, to develop and introduce new tools to assess whether remediation efforts are protective of human health; and second, to increase use of bioavailability in risk assessment through providing scientifically-valid, practical, and cost-effective tools. In response to this solicitation, five three-year awards were made in 2011. For more information and to register, see <http://clu-in.org/live>.

ITRC Soil Sampling and Decision Making Using Incremental Sampling

Methodology Parts 1 and 2 - May 8 and 15, 2012. This 2-part training course along with ITRC's web-based Incremental Sampling Methodology Technical and Regulatory Guidance Document (ISM-1, 2012) is intended to assist regulators and practitioners with the understanding the fundamental concepts of soil/contaminant heterogeneity, representative sampling, sampling/laboratory error and how ISM addresses these concepts. Through this training course you should learn: basic principles to improve soil sampling results, systematic planning steps important to ISM, how to determine ISM Decision Units (DU), the answers to common questions about ISM sampling design and data analysis, methods to collect and analyze ISM soil samples, the impact of laboratory processing on soil samples, and how to evaluate ISM data and make decisions. In addition this ISM training and guidance provides insight on when and how to apply ISM at a contaminated site, and will aid in developing or reviewing project documents incorporating ISM (e.g., work plans, sampling plans, reports). For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live> .

Staying Connected with CLU-IN - May 9, 2012, 1:00PM-2:00PM EDT (17:00-18:00 GMT). This seminar will discuss information delivery services offered by the Clean-Up Information Network (CLU-IN). Presenters will highlight new Facebook and Twitter feeds to keep interested parties connected to CLU-IN. Other services such as free e-newsletters, RSS feeds, Podcasts, and online training will also be showcased. For more information and to register, see <http://clu-in.org/live> .

ITRC LNAPL Training Parts 1, 2, and 3 - May 10, 17, 24. Light non-aqueous phase liquids (LNAPLs) are organic liquids such as gasoline, diesel, and other petroleum hydrocarbon products that are immiscible with water and less dense than water. LNAPLs are important because they are present in the subsurface at thousands of remediation sites across the country, and are frequently the focus of assessment and remediation efforts. Part 1 of this training course explains how LNAPLs behave in the subsurface and examines what controls their behavior. Part 1 also explains what LNAPL data can tell you about the LNAPL and site conditions. Relevant and practical examples are used to illustrate key concepts. Part 2 addresses LNAPL characterization and site conceptual model development as well as LNAPL recovery evaluation and remedial considerations. Specifically, Part 2 discusses key LNAPL and site data, when and why those data may be important, and how to get those data. Part 2 also discusses how to evaluate LNAPL recoverability. Part 3 uses the LNAPL conceptual site model (LCSM) approach to identify the LNAPL concerns or risks and set proper LNAPL remedial objectives and technology-specific remediation goals and performance metrics. Part 3 also provides an overview of the LNAPL remedial technology selection framework. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live> .

Understanding Arsenic: From Vasculature to Vegetables - May 16, 2012, 1:00PM-3:00PM EDT (17:00-19:00 GMT). This two-part seminar will feature Dr. Todd Camenisch and Monica Ramirez-Andreotta from the University of Arizona Superfund Research Program and will focus on arsenic effects on cardiovascular development and arsenic uptake in garden vegetables. The impact of arsenic on human health has been largely focused on cellular transformation and cancer in adults. Mechanistic studies of arsenic on the cardiovascular system have been limited, and even less is known about the effects of early arsenic insult (pre- or neonatal) on cardiotoxicity. Dr. Todd Camenisch will discuss studies using a mouse model as an intact system to reveal mechanisms of arsenic-triggered cardiovascular toxicity during development. To our knowledge, this is the first animal study to assess cardiovascular changes in response to chronic exposure to environmentally-relevant concentrations of arsenic. Measures of cardiac formation and function have revealed important effects on cardiac development in the mouse model; outcomes and significance for cardiovascular health in chronically-exposed populations will be discussed. There is a growing need to

accurately evaluate the toxicological risks to resident food gardeners neighboring contaminated environments. Monica D. Ramirez-Andreotta, MPA, will report on her study Gardenroots: The Dewey-Humboldt, Arizona Garden Project, which was designed to determine the uptake of arsenic and lead in commonly grown vegetables in Arizona and evaluate the possible health risks to the local population. The project comprised a greenhouse study and a citizen science program conducted with a community neighboring a national Superfund site. A comparative analysis was conducted between the concentrations of arsenic and lead found in the soils, irrigation water, edible tissues of crops from the greenhouse and residential gardens. Vegetable intake rates were calculated to determine how much could be safely consumed at these measured concentrations. The citizen science program will be discussed in terms of recruitment, training, informal science learning opportunities, sample collection, communication efforts, and potential participant educational outcomes. For more information and to register, see <http://clu-in.org/live>.

Use of Nanomaterials for Environmental Remediation of Hazardous Waste Sites: The Role of Nanoinformatics in Support of State Agencies' Health and Safety Oversight Actions - May 21, 2012, 2:00PM-3:30PM EDT (18:00-19:30 GMT).

Environmental remediation, based on nanomaterials, is no longer a theoretical concept but a proven technology. More than twenty five Superfund sites across the country are using nanomaterials for remediation, and the use of nanomaterials continues to present tremendous promise for technological advancements in other applications as well, including ultra filtration of waste water. Use of nanomaterials or engineered nanoparticles (ENPs) could be more effective and cheaper than other conventional remediation practices or technologies. Despite the many benefits presented by ENPs, including their ability to decontaminate pollutants, many health and safety risks have been raised. For responsible development of ENPs and to allow this technology to play a major role in sustaining a positive, healthy environment and a vibrant economy, these concerns have to be addressed. Understanding the risks posed by ENPs at the state and local government levels is a challenge, particularly when information regarding their fate and transport or toxicity, safety and environmental impacts of most ENPs used for remediation is lacking. State government agencies and programs will likely play a significant role in the future in supporting EPA's work of ensuring that the employment of nanotechnology for environmental remediation and other applications does not significantly affect the health and safety of workers or the general public. To support this endeavor, there is a need to identify, collect and collate relevant information relating to nanomaterials' safety, health and toxicological properties. This presentation, given by Dr. Ephraim Massawe of Southeastern Louisiana University, will provide EPA with detailed framework, resulting from the inputs of various focus groups of experts, designed to understand these information and technical needs relevant for environmental, health and safety oversight at the state and local government levels.

The framework includes seeking to understand from various experts, working with nanomaterials in the federal government agencies (e.g. EPA and their consultants), their opinion regarding the minimum amount and type of information and regulatory guidance documents needed for sustainable oversight of nanomaterials at the local level. Also, the preliminary results of a survey conducted with the state agencies and programs across the country to assess the information and technological needs will be highlighted. For more information and to register, see <http://clu-in.org/live>.

Renewable Energy on Contaminated Land: Tools for Local Governments - May 22, 2012, 2:00PM-3:30PM EDT (18:00-19:30 GMT). This webinar will provide an overview of tools available to local governments to help them get renewable energy projects built on contaminated land in their community. Through its RE-Powering America's Land initiative, the U.S. Environmental Protection Agency (EPA) is encouraging renewable energy development on current and formerly contaminated land and mining sites. EPA has identified thousands of acres of Brownfield, Superfund, mining, and other potentially contaminated sites with potential for utility scale solar

facilities. Siting renewable energy facilities on brownfields offers significant benefits to communities. During this session, Shea Jones with EPA's RE-Powering America's Land Initiative will highlight some of the recent tools developed by EPA, including two decision trees that were created to screen potentially contaminated and underutilized sites for solar and wind potential and a draft best practice guide for siting solar on landfills. Joshua Huneycutt with DOE's Sun Shot Initiative will discuss DOE's compilation of best practices titled "Solar Powering Your Community: A Guide for Local Governments." Anjali Patel with the National Association of Local Government Environmental Professionals (NALGEP) will provide an overview of NALGEP's "Cultivating Green Energy on Brownfields: A Nuts and Bolts Primer for Local Governments." Finally, Stephanie Wang with the Clean Coalition will describe the "Local CLEAN Program Guide", which helps local policymakers and advocates across the nation design, implement and campaign for CLEAN Programs. For more information and to register, see <http://clu-in.org/live> .

Superfund Redevelopment Initiative Webinar Series: Aligning Remedies with Reuse - May 23, 2012, 2:00PM-4:00PM EDT (18:00-20:00 GMT). Superfund Redevelopment Initiative (SRI) hosts a series of quarterly webinars on redevelopment of Superfund sites across the country. These webinars share the history of redevelopment, discuss the different types of reuse that are possible and share how particular Superfund sites have become reuse success stories. In addition to the webinar sessions, SRI also highlights a new site and its redevelopment story every other month. For more information and to register, see <http://clu-in.org/live> .

> New Documents and Web Resources

Technology News and Trends (EPA 542-N-12-002). This issue highlights projects involving optimization reviews undertaken by the U.S. EPA and partnering state agencies or site owners. Each project involved an optimization review performed by an independent organization and funded by EPA's Office of Superfund Remediation and Technology Innovation. The highlighted projects illustrate how optimization can be used to modify specific components of a treatment process or monitoring program in order to improve remedy effectiveness, reduce remedy implementation costs, and increase technical efficiencies. The highlighted projects focus on sites with operating remedies; however, EPA is now applying optimization to all phases of remediation, from remedial investigation to site completion (April 2012, 6 pages). View or download at <http://clu-in.org/techpubs.htm> .

Technology News and Trends: Let Us Know If You Would Like to Go Paperless! In the interest of minimizing the resources required to print and distribute the Technology News and Trends newsletter (<http://www.clu-in.org/products/newsletters/tnandt/>), EPA is going paperless and will be distributing the newsletter electronically. If you are a subscriber, please let us know if you would like to continue your subscription via semi-monthly email notifications. Please send an email message with your mailing address and email address to TNTeditor@emsus.com. Put "Paperless" in the subject line so we can make the switch.

AFCEE Emerging Issues Program. The AFCEE Emerging Issues (EI) Program continues to develop data-driven information to support the AF Environmental Restoration Program's questions and needs regarding "emerging contaminants" (ECs) at restoration sites. For environmental restoration purposes, EC's are site-specific based on regional or state regulatory standards and/or site-specific conditions, and will fall under one of two general classes: (1) ECs may be "emerging" because the

compounds have never been considered at environmental restoration sites, (i.e. have never been included as a Contaminant of Potential Concern (COPC)), and have substantial data gaps regarding extent of AF contamination, sufficient analytical methods, and/or toxicity of the EC, (2) a contaminant may be "emerging" due to a revision to or change in that compound's regulatory risk drivers, (i.e. regulatory standards are changing, however the AF already has systems or strategies in place to address the EC; e.g. TCE). Currently, the EI Program is filling key data-gaps for perfluorinated compounds (PFCs), supplying needs and objectives for AFCEE Broad Agency Announcement (BAA) addressed innovative remediation technologies of 1,4-dioxane and PFCs, and developing RACER cost estimates to determine the financial requirements necessary to delineate 1,4-dioxane and hexavalent chromium under Performance Based Remediation (PRB) at an enterprise-scale. For more information, see <http://www.afcee.af.mil/resources/emergingissues/>.

Technology Innovation News Survey Corner. The Technology Innovation News Survey contains market/commercialization information; reports on demonstrations, feasibility studies and research; and other news relevant to the hazardous waste community interested in technology development. Recent issues, complete archives, and subscription information is available at <http://clu-in.org/products/tins/>. The following resources were included in recent issues:

- Characterization and Fate of Gun and Rocket Propellant Residues on Testing and Training Ranges
- Advances in Classification Methods for Military Munitions Response
- Thermal Treatment Technologies: Lessons Learned
- Measurement and Use of Mass Discharge and Mass Flux at Contaminated Sites
- From Vacancy to Vibrancy: A Guide to Redeveloping Underground Storage Tank Sites through Area-Wide Planning
- Open Burn/Open Detonation (OBOD) Area Management Using Lime for Explosives Transformation and Metals Immobilization
- Field-Portable Gas Chromatograph Mass Spectrometer (GC-MS) Unit for Semi-Volatile Compound Analysis in Groundwater
- Verification of Building Pressure Control as Conducted by GSI Environmental, Inc. for the Assessment of Vapor Intrusion: Environmental Technology Verification Report
- DNAPL Dissolution in Bedrock Fractures and Fracture Networks
- Development of a Protocol and a Screening Tool for the Selection of DNAPL Source Area Remediation
- Diagnostic Tools for Performance Evaluation of Innovative In-Situ Remediation Technologies at Chlorinated Solvent-Contaminated Sites: Guidance Report
- Validation of Chlorine and Oxygen Isotope Ratio Analysis to Differentiate Perchlorate Sources and to Document Perchlorate Biodegradation: Guidance Document
- Lab-On-A-Chip Sensor for Monitoring Perchlorate in Ground and Surface Water
- Bioaccumulation Models: State of the Application at Large Superfund Sites
- Evaluation of Sampling and Sample Preparation Modifications for Soil Containing Metallic Residues
- Incremental Sampling Methodology
- Handbook on the Benefits, Costs and Impacts of Land Cleanup and Reuse

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 39 resources, events, projects and news items were added to EUGRIS in April 2012. 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 resource was posted on EUGRIS:

Assessment and Management of Polar PACs in Contaminated Soils and

Remedial Processes Project. The objectives of this project are to assess to what extent the compounds belonging to the group polar PACs (e.g. oxy-PAHs and azaarenes) involve additional risk at PAH-contaminated sites, and also to find ways to manage and reduce this potential risk. View more information at

<http://www.snowmannetwork.com/main.asp?id=122> .

> Conferences and Symposia

Best Management Practices for Site Assessment, Remediation, and Greener Cleanups, San Francisco, CA, May 18, 2012. The U.S. EPA Technology Innovation and Field Services Division (TIFSD) and U.S. EPA Region 9 are offering this training based on best management practices (BMP) implemented by the U.S. EPA, partnership organizations, federal and state partners, and consultants. Course participants will learn how these BMPs can be used to streamline projects in a legal, technically sound, and cost-effective manner. There are no tuition costs for this course. The target audience includes EPA, federal, state, tribal, and private industry technical project managers and stakeholders involved in the development and implementation of BMPs to clean up hazardous waste sites. For more information and to register, see

<http://trainex.org/BMP-SARGC> .

Training Opportunities for Small and Disadvantaged Businesses (SDBs). The U.S. EPA Technology Innovation and Field Services Division (TIFSD) is offering training that is designed to build the technical capacity of SDBs in the site characterization and remediation field. The training is part of an exciting new initiative designed to build the technical capacity of SDBs as they compete for environmental cleanup jobs in a greener workforce. The following courses are scheduled to be offered in 2012: Best Management Practices for Site Assessment, Remediation, and Greener Cleanups, May 18 in San Francisco, CA, or August 14 in Denver, CO (<http://trainex.org/BMP-SARGC>); Triad Training for Practitioners, August 14-16 in Denver, CO (<http://trainex.org/TriadPractitioners>); and Groundwater High-Resolution Site Characterization, August 7-8 in Boston, MA (<http://www.trainex.org/1389>). There are no tuition costs for these courses. Other environmental professionals who may find these courses of interest include EPA, federal, state, and tribal technical project managers and stakeholders involved in the cleanup and reuse of hazardous waste sites. For additional information on this initiative, visit

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

Calls for Abstracts!! Sustainable Remediation 2012 Conference, Vienna, Austria, November 14-16 2012. The Sustainable Remediation 2012 Conference is being held by EURODEMOplus (Environment Agency Austria) in association with the US EPA and CL:AIRE (UK). The Sustainable Remediation Conference 2012 provides a venue for professionals and interested parties from multiple backgrounds to share experiences and perspectives on how contaminated sites can be remediated with a lower environmental footprint, and how their reuse can contribute to a more sustainable development. The event builds on the Green Remediation Conference held in Copenhagen November 2009, and subsequent discussions at ConSoil and through virtual events. The conference call for abstracts is open through June 8th with full details provided at <http://www.sustainableremediation2012.org> . To submit an abstract, fill out the contact form at <http://www.eurodemo.info/general/contact/>. For further background on previous events see <http://clu-in.org/global> .

Registration Now Open!! State Environmental Protection in 2012 (STEP 2012), Washington, DC, June 7-8, 2012. STEP 2012 will feature state environmental commissioners/directors engaging representatives of federal agencies, industry,

environmental groups, think tanks, associations, and legal and political consulting firms to address today's most pressing environmental issues. The meeting provides a forum for state officials, business and industry, nonprofits, governmental agencies, and others to explore current challenges in meeting environmental and public health demands in an era of declining resources. Topics for discussion include: more rules, less money, air & energy, innovation, green energy, toxics reform, coal ash, and water issues. For more information and to register, see <http://www.ecos.org/section/events/?id=4622> .

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. 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/techdirect> at any time night or day.

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