



TechDirect, September 1, 2013

Welcome to TechDirect! Since the August 1 message, TechDirect gained 233 new subscribers for a total of 35,395. 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 groundwater.

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.

> Funding Opportunity

National Institute of Environmental Health Sciences (NIEHS) Superfund Research Program (SRP) Interdisciplinary R01 RFA on Biogeochemical Interactions. On July 24th, SRP released RFA-ES-13-010 "Biogeochemical Interactions Affecting Bioavailability for in situ Remediation of Hazardous Substances." SRP is requesting applications for Individual Research Projects (R01) to support problem-solving research on the mechanisms of biogeochemical interactions affecting bioavailability in the context of in situ remediation of contaminated soil, sediment, surface water, or groundwater. This solicitation is open to investigators from Domestic Institutions of Higher Education. Letters of Intent are due October 2, 2013. Applications are due November 1, 2013. The SRP will be holding a CLU-IN seminar on September 5, 2013, 2:30-3:30 pm EDT (18:30-19:30 GMT) to provide information about the R01 Funding Opportunity Announcement. For more information and instructions, see <http://www.niehs.nih.gov/research/supported/dert/cris/programs/srp/funding/funding2/>.

> Upcoming Live Internet Seminars

CEC Hazard Ranking System (HRS) Webinar Series - October 15, 17, 21, 22, 28, and 30. The Hazard Ranking System (HRS) webinar series is an intermediate-level course designed for personnel who are required to compile, draft and review preliminary assessments (PA), site inspections (SI), and HRS documentation records/packages submitted for proposal to the National Priorities List (NPL). **The course is intended for EPA Regional, state, tribal and contractor personnel, who support EPA in the Superfund site assessment/NPL listing process.** This course

assumes a basic understanding of the HRS and its context within the site assessment process. The training course is intended to enable staff to prepare HRS packages for the NPL and to plan PAs and SIs to address future HRS scoring issues. This training course provides details of the structure and application of the revised HRS and information related to the preparation of HRS packages, including HRS scoresheets, documentation records and site summaries. The course will incorporate an interactive case study to provide practical application of the HRS. The webinar series consists of six two-hour sessions over three weeks. In order to receive credit for taking the course, participants must participate in each session. If you are unable to make one of the sessions, archived versions will be made available at www.clu-in.org that you can take to receive credit for the missed live session. In order to receive credit for a missed session, you must complete the missed session within 2 months of the originally scheduled date and submit an evaluation form from that archived module. For more information and to register, see <http://clu-in.org/live>.

Mining Site Metals: Exposure Pathways and Bio-Assays - September 3, 2013, 1:00PM-3:00PM EDT (17:00-19:00 GMT). This two-part seminar will feature Dr. Miranda Loh and Dr. Robert Root from the University of Arizona Superfund Research Program and will focus on characterizing arsenic exposure at a former mine and smelter site in Arizona. At the Iron King Mine and Humboldt Smelter Superfund Site in Dewey-Humboldt, AZ, issues of concern include: metal contamination from mine tailings; high levels of naturally-occurring arsenic in soil and groundwater; and residents' exposure to these contaminants. Dr. Miranda Loh will describe her work characterizing exposure pathways in the Metals Exposure Study in Homes. This study investigates whether there is a relationship between living near a former mine and smelter site and children's exposure to metals, particularly arsenic and lead, via soil, dust, and water. Metals were measured in residential soil, dust, water, urine, blood, and toenail samples from multiple children in 34 households up to 5 miles from the site, and compared to national studies. To further understand potential exposures, Dr. Robert Root will describe his work combining in vitro bio-assays with molecular-scale speciation to interrogate the bioaccessibility of arsenic in mine tailings. Collected surface particles, tailings, and efflorescent salts were reacted with synthetic lung and gastric fluids and analyzed by synchrotron x-ray spectroscopy for arsenic speciation. Results show that the fraction of metals released varies by particulate type as well as by bio-fluid type, which may have implications for exposure risk. For more information and to register, see <http://clu-in.org/live>.

Biofuels: Release Prevention, Environmental Behavior, and Remediation - September 5, 2013, 11:00AM-1:15PM EDT (15:00-17:15 GMT). This training, which is based on the ITRC's Biofuels: Release Prevention, Environmental Behavior, and Remediation (Biofuels-1, 2011), focuses on the differences between biofuels and conventional fuels specific to release scenarios, environmental impacts, characterization, and remediation. The trainers will define the scope of the potential environmental challenges by introducing biofuel fundamentals, regulatory status, and future usage projections. Participants will learn how and when to use the ITRC biofuels guidance document for their projects. They will understand the differences in biofuel and petroleum behavior; become familiar with the biofuel supply chain, potential release scenarios and release prevention; be able to develop an appropriate conceptual model for the investigation and remediation of biofuels; and select appropriate investigation and remediation strategies. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

SRP Funding Opportunities Web Seminar - September 5, 2013, 2:30PM-3:30PM EDT (18:30-19:30 GMT). The Superfund Research Program (SRP) at the National Institute of Environmental Health Sciences (NIEHS) will be holding a web seminar to provide information about the recently released Individual Research Grant (R01) Funding Opportunity Announcement: Biogeochemical Interactions Affecting

Bioavailability for in situ Remediation of Hazardous Substances RFA ES-13-010: <http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-13-010.html>. During this webinar NIEHS staff review the FOA and answer participant questions regarding the intended scope of the research as well as the application and review processes. For more information and to register, see <http://clu-in.org/live>.

ITRC LNAPL Training Parts 1, 2, and 3 September 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>.

Case Studies to Assess Potential Impacts of Hydraulic Fracturing on Drinking Water Resources - September 12, 2013, 11:00AM-12:00PM EDT (15:00-16:00 GMT). On July 30, 2013, EPA hosted a Hydraulic Fracturing Study Technical Workshop on Case Studies to Assess Potential Impacts of Hydraulic Fracturing on Drinking Water Resources. This one-hour webinar will provide a summary of the workshop and cover workshop themes. For more information and to register, see <http://clu-in.org/live>.

Reuse Planning at Superfund Sites: A Little Planning Can Go a Long Way - September 16, 2013, 3:30PM-5:30PM EDT (19:30-21:30 GMT). Stakeholder and community involvement are integral parts of EPA's mission and necessary components of successful site reuse. Superfund site reuse planning provides a unique opportunity for stakeholders and EPA to collaborate on the redevelopment and reuse of Superfund sites at appropriate times before, during, and after site cleanup has been completed. It is never too late or too early to think about reuse at a site. EPA's Superfund Redevelopment Initiative (SRI) supports communities nationwide interested in reintegrating Superfund sites into the fabric of their neighborhoods and towns through beneficial reuse. This webinar will introduce reuse planning, discuss how value is added at various levels of reuse planning engagement, and review tangible and intangible benefits of reuse planning for EPA, the community and the site. Using case studies from across the nation, this webinar will share how effective reuse plans and support from EPA programs such as SRI can bring communities together, build goodwill for EPA and determine the most appropriate reuse options for Superfund sites. For more information and to register, see <http://clu-in.org/live>.

ITRC Green & Sustainable Remediation - September 19, 2013, 11:00AM-1:15PM EDT (15:00-17:15 GMT). Many state and federal agencies are just beginning to assess and apply green and sustainable remediation (GSR) into their regulatory programs. This training provides background on GSR concepts, a scalable and flexible framework and metrics, tools and resources to conduct GSR evaluations on remedial projects. The training is based on the ITRC's Technical & Regulatory Guidance Document: Green and Sustainable Remediation: A Practical Framework (GSR-2, 2011) as well as ITRC's Overview Document, Green and Sustainable Remediation: State of

the Science and Practice (GSR-1, 2011). Beyond basic GSR principles and definitions, participants will learn the potential benefits of incorporating GSR into their projects; when and how to incorporate GSR within a project's life cycle; and how to perform a GSR evaluation using appropriate tools. In addition, a variety of case studies will demonstrate the application of GSR and the results. The training course provides an important primer for both organizations initiating GSR programs as well as those organizations seeking to incorporate GSR considerations into existing regulatory guidance. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

CEC Training for OSCs...RCRA for OSCs - September 25, 2013, 1:00PM-3:00PM EDT (17:00-19:00 GMT). RCRA for OSCs explains the Resource Conservation and Recovery Act (RCRA) requirements that apply or are relevant and appropriate to most cleanups under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This session will focus on specific technical and regulatory issues that OSCs address in treating, transporting, and disposing of waste. For more information and to register, see <http://clu-in.org/live>.

ITRC Use and Measurement of Mass Flux and Mass Discharge - September 26, 2013, 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>.

CEC Training for OSCs...Pipeline Emergencies - October 2, 2013, 1:00PM-4:00PM EDT (17:00-20:00 GMT). Approximately 327,000 miles of natural gas transmission pipelines, 1.8 million miles of natural gas distribution pipelines and 161,000 miles of liquid pipelines safely transport natural gas and a range of liquid petroleum products daily. Like any industry that deals with hazardous materials, there are potential risks in the manufacturing and transportation processes. Pipeline Emergencies is a 3-hour webinar training course that provides practical information on how to respond safely and effectively to pipeline incidents and emergencies. The purpose of the course is to provide participants with the knowledge and understanding of the EPA's regulatory authority regarding pipeline emergency planning and response operations, how pipelines operate, the common products that may be transported through both transmission and distribution pipeline systems, the various roles and responsibilities among emergency responders and government and industry when responding to an incident and pipeline emergency response operations. The target audience for this webinar course is new and mid-career On-Scene Coordinators (OSC) with an interest in learning about pipeline emergencies. This webinar does not address tactics and field methodology as that information is better suited for face-to-face or field demonstration training. For more information and to register, see <http://clu-in.org/live>.

> New Documents and Web Resources

Optimization Review: Bunker Hill Mining and Metallurgical Complex Superfund Site, Central Treatment Plant (CTP), Kellogg, Shoshone County, Idaho (EPA

542-R-13-004). The document describes the optimization evaluation that was performed on the Bunker Hill Mining and Metallurgical Complex Superfund Site Central Treatment Plant in 2012. The document includes a description of the efforts performed during the optimization review, a description of the remedy components at the sites, a description of the conceptual site model, and findings and recommendations for the site (July 2013, 51 pages). View or download at <http://clu-in.org/techpubs.htm> .

RE-Powering Mapper. Many contaminated lands, landfills, and mine sites are particularly well-suited for renewable energy development because they are situated in close proximity to critical infrastructure such as electric transmission lines and roads, located near areas with high energy demands, and offered at lower land costs when compared to open space. The U.S. Environmental Protection Agency (EPA) RE-Powering America's Land initiative recently released an updated RE-Powering Mapper tool that provides preliminary screening results for renewable energy potential at contaminated properties tracked by EPA and partnering state agencies. Through continued collaboration with the U.S. Department of Energy's National Renewable Energy Laboratory, the tool now covers more than 66,000 sites and includes screening criteria for solar, wind, biomass, and geothermal potential at various levels of development. States with agencies that have joined this effort include California, Hawai'i, Oregon, Pennsylvania, New Jersey, New York, West Virginia, and Virginia. View or download at http://epa.gov/renewableenergyland/rd_mapping_tool.htm .

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:

- EPA and Commerce Link U.S. Analysis and Companies in Environmental Solutions Toolkit
- Innovative Science and Technical Support for Cost-Efficient Cleanups: Five Year Summary Report for 2007-2012
- New Cost-Effective Method for Long-Term Groundwater Monitoring Programs
- ESTCP Vapor Intrusion Final Debrief
- Quantifying the Presence and Activity of Aerobic, Vinyl Chloride-Degrading Microorganisms in Dilute Groundwater Plumes by Using Real-Time PCR
- 3-D Modeling of Aerobic Biodegradation of Petroleum Vapors: Effect of Building Area Size on Oxygen Concentration Below the Slab
- Validation of Chlorine and Oxygen Isotope Ratio Analysis to Differentiate Perchlorate Sources and to Document Perchlorate Biodegradation
- Biodegradation of PCDDs/PCDFs and PCBs
- Remedy Evaluation Framework for Inorganic, Non-Volatile Contaminants in the Vadose Zone
- 2013 Addendum to the ATSDR Toxicological Profile for Trichloroethylene
- Engineering Issue: Technology Alternatives for the Remediation of PCB Contaminated Soils and Sediments
- Ground Water Issue: An Approach for Developing Site-Specific Lateral and Vertical Inclusion Zones within Which Structures Should Be Evaluated for Petroleum Vapor Intrusion Due to Releases of Motor Fuel from Underground Storage Tanks
- PAH/PCB Fingerprinting Tool
- Verification of Methods for Assessing the Sustainability of Monitored Natural Attenuation (MNA): ESTCP Cost and Performance Report
- Polymer-Enhanced Subsurface Delivery and Distribution of Permanganate: Project ER-200912 Final Debrief
- Parallel In Situ Screening of Remediation Strategies for Improved Decision

- Making, Remedial Design, and Cost Savings: Project ER-200914 Final Debrief
- Improved Understanding of Sources of Variability in Groundwater Sampling for Long-Term Monitoring Programs

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. 12 resources, events, projects and news items were added to EUGRIS in August 2013. These can be viewed at:

<http://www.eugris.info/whatsnew.asp>. Then select the month and year for the updates you are interested in.

> Conferences and Symposia

Groundwater High-Resolution Site Characterization (HRSC), Chicago, IL, September 24-25, San Francisco, CA, December 12-13. This is a two-day training course that focuses on groundwater characterization and discusses (1) the impacts of subsurface heterogeneity on the investigation and cleanup of groundwater and related media, (2) the need for scale-appropriate measurements and adequate data density, and (3) the tools and strategies that are available to overcome the impacts of subsurface heterogeneity. After taking this course, participants will be armed with information that will allow them to improve their subsurface investigation approaches and develop more realistic and comprehensive conceptual site models (CSM). CSMs developed based on HRSC strategies and tools will decrease site uncertainty, improve the remedy selection process for groundwater remedies, and better enable the evaluation, design, and implementation of targeted in situ and ex situ groundwater remedies. The recommended audience for this course includes EPA, federal, state, tribal, and private industry technical project managers, practitioners and other stakeholders involved in groundwater investigation and remediation. For more information and to register, see <http://www.trainex.org/hrsc>.

U.S. EPA's Region 9 State-of-the-Science Workshop on Mercury Remediation in Aquatic Environments, San Francisco, CA, September 26, 2013. As part of implementing EPA Region 9's strategic plan, ORD and the Region are planning a state of the science workshop to investigate the latest in remediation techniques for mercury contaminated sites in aquatic environments. The workshop will be held on Thursday, September 26th at the EPA office in San Francisco. Participation is also possible via webinar. The objective is to understand the key mechanisms linking source loads, methylation, and bioaccumulation of mercury to guide future remediation decisions. The workshop will examine the effect of current remediation practices, such as removing/capping lake sediments, isolating retort or tailings from waters, and on levels of mercury in fish tissue. We want to know whether removing these mercury sources have a real effect on fish tissue levels and to understand the key mechanisms that actually cause fish tissue levels to drop. And we want to better understand what will directly affect the methylation process at specific sites so that concrete actions can be taken to reduce fish tissue levels. The workshop is open to anyone working on or interested in this topic - regulators, industry, academics and consultants are all invited. There is no cost for the workshop. There are hookup limits to the webinar option, so if you are aware of other interested colleagues, please consider sharing a single registration. For more information and to register, see <http://www.trainex.org/hg>.

LNAPLs: Science, Management, and Technology ITRC 2-day Classroom Training, Garden Grove, CA, October 1-2, 2013. Led by internationally recognized experts, this 2-day ITRC classroom training will enable you to develop and apply an LNAPL Conceptual Site Model (LCSM), understand and assess LNAPL subsurface behavior,

develop and justify LNAPL remedial objectives including maximum extent practicable considerations, select appropriate LNAPL remedial technologies and measure progress, and use ITRC's science-based LNAPL guidance to efficiently move sites to closure. Interactive learning with classroom exercises and Q&A sessions will reinforce these course learning objectives. For local, state, and federal government; students; community stakeholders; and tribal representatives, ITRC has a limited number of scholarships (waiver of registration fee only) available. For more information and to register, see <http://www.itrcweb.org/training>.

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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