U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, April 1, 2016

Welcome to TechDirect! Since the March 1 message, TechDirect gained 258 new subscribers for a total of 35,895. If you feel the service is valuable, please share TechDirect with your colleagues. Anyone interested in subscribing may do so on CLU-IN at https://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.

> Upcoming Live Internet Seminars

ITRC Soil Sampling and Decision Making Using Incremental Sampling Methodology Parts 1 and 2 - April 12 and 14, 2016. 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 understanding the fundamental concepts of soil/contaminant heterogeneity, representative sampling, sampling/laboratory error and how ISM addresses these concepts. Through this training course the participant 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 https://clu-in.org/live.

SERDP and ESTCP Webinar - Long Term Monitoring Issues at Chlorinated Solvent Sites - April 21, 2016, 12:00PM EDT (16:00 GMT). SERDP and ESTCP are offering webinars to promote the transfer of innovative, cost-effective and sustainable solutions. The webinar series targets end users including practitioners, the regulatory community and researchers to provide cutting-edge and practical information from sponsored research and technology demonstrations. An upcoming webinar on April 21 will feature two presentations highlighting Department of Defense (DoD) research efforts on long term monitoring issues at chlorinated solvent sites. First, Ms. Poonam Kulkarni and Dr. Thomas McHugh from GSI Environmental will talk about methods for the minimization and management of variability in long term groundwater monitoring results. Second, Dr. Ron Falta from Clemson University will discuss a practical

approach for modeling matrix diffusion effects in low permeability zones. To view presentation abstracts and speaker biographies and to register for this free webinar, please visit https://serdp-estcp.org/Tools-and-Training/Webinar-Series/04-21-2016.

Military Munitions Support Services - Advanced Classification - April 21, 2016, 1:00PM-4:00PM EDT (17:00-20:00 GMT). This will be a Military Munitions Support Services seminar with subject matter experts discussing advanced classification. For more information and to register, see https://clu-in.org/live.

On SRP Water Innovation - An Integrated Approach to Sustainable Solutions: Session I - Introducing the Big Picture - April 25, 2016, 2:00PM-4:00PM EDT (18:00-20:00 GMT). The NIEHS Superfund Research Program (SRP) is hosting a seminar series to highlight SRP-funded projects around the country that support innovation in water technologies and research. In Session I of this series, SRP staff and grantees will introduce challenges and opportunities to protect water quality and promote access to safe, drinkable water. SRP Director Bill Suk, Ph.D., will begin the session by making the connection between SRP research and water innovation. The SRP funds multidisciplinary research addressing the complex and evolving challenges associated with Superfund and related hazardous waste sites. Some of this funded research, however, can be directly applicable to addressing challenges in water quality and the development of the next generation of water technologies. David Sedlak, Ph.D., from the University of California, Berkeley SRP Center will introduce the challenges in the water sector and discuss opportunities for boosting water sustainability. He will also discuss water reuse-the practice of using municipal wastewater effluent to sustain aquatic ecosystems and augment drinking water supplies-as well as the treatment and use of contaminated groundwater as water supplies. Wendy Heiger-Bernays, Ph.D., and Madeleine Scammell, D.Sc, from the Boston University SRP Center, will discuss their work with a Massachusetts town after the discovery of 1,4-dioxane in private drinking water wells, and concerns regarding a capped landfill as the source. They will provide an overview of relevant aspects of the safe drinking water act as per this particular unregulated drinking water contaminant and potential health risks. For more information and to register, see https://clu-in.org/live.

CERCLA Section 108(b) Proposed Rule for Hard Rock Mining - April 26, 2016, 2:00PM-3:00PM EDT (18:00-19:00 GMT). The Office of Resource Conservation and Recovery will present a webinar on the development of the proposed regulation for financial responsibility for certain hard rock mines and mineral processing facilities under Section 108(b) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). EPA previously presented the CERCLA 108(b) proposed rule framework in a webinar held in September, 2015, available at https://www.youtube.com/watch?v=xq5Di3Ti6Oc&feature=youtu.be. The upcoming webinar will provide an update on the Agency's progress in developing the rule, and describe the Agency's current thinking on the key aspects of the rule described in the framework. Stakeholders and other members of the public are invited to learn about the CERCLA 108(b) rulemaking and will have the opportunity to ask questions during the webinar. For more information and to register, see https://clu-in.org/live.

ITRC Geophysical Classification for Munitions Response - April 28, 2016, 1:00PM-3:15PM EDT (17:00-19:15 GMT). This training class and supporting guidance document explain the process of geophysical classification, describe its benefits and limitations, and discuss the information and data needed by regulators to monitor and evaluate the use of the technology. This document and training also emphasize using a systematic planning process to develop data acquisition and decision strategies at the outset of a munitions response effort, as well as quality considerations throughout the project. Stakeholder issues that are unique to munitions response are also discussed. After this training class, participants will: understand the technology and terminology, be ready to engage in the planning process to address quality considerations

throughout a project, find tools to transfer knowledge within organizations and to stakeholders, and start to transition mindset to decisions that leave non-hazardous items in the ground. An audience who understand current munitions response tools and procedures (for example, geophysical surveys, sensors, data analysis) will benefit most from this document and training. For more information and to register, see http://www.itrcweb.org or https://clu-in.org/live.

Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management - May 3, 2015, 1:00PM-3:15PM EDT (17:00-19:15 GMT). Chemical contaminants in soil and groundwater can volatilize into soil gas and migrate through unsaturated soils of the vadose zone. Vapor intrusion (VI) occurs when these vapors migrate upward into overlying buildings through cracks and gaps in the building floors, foundations, and utility conduits, and contaminate indoor air. If present at sufficiently high concentrations, these vapors may present a threat to the health and safety of building occupants. Petroleum vapor intrusion (PVI) is a subset of VI and is the process by which volatile petroleum hydrocarbons (PHCs) released as vapors from light nonaqueous phase liquids (LNAPL), petroleum-contaminated soils, or petroleum-contaminated groundwater migrate through the vadose zone and into overlying buildings. The ITRC Technical and Regulatory Guidance Web-Based Document, Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management (PVI-1, 2014) and this associated Internet-based training provides regulators and practitioners with consensus information based on empirical data and recent research to support PVI decision making under different regulatory frameworks. The PVI assessment strategy described in this guidance document enables confident decision making that protects human health for various types of petroleum sites and multiple PHC compounds. This guidance provides a comprehensive methodology for screening, investigating, and managing potential PVI sites and is intended to promote the efficient use of resources and increase confidence in decision making when evaluating the potential for vapor intrusion at petroleum-contaminated sites. By using the ITRC guidance document, the vapor intrusion pathway can be eliminated from further investigation at many sites where soil or groundwater is contaminated with petroleum hydrocarbons or where LNAPL is present. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/live.

ITRC Integrated DNAPL Site Characterization - May 5, 2016, 1:00PM-3:15PM EDT (17:00-19:15 GMT). The Integrated DNAPL Site Characterization Team has synthesized the knowledge about dense nonaqueous phase liquid (DNAPL) site characterization and remediation acquired over the past several decades, and has integrated that information into a new document, Integrated DNAPL Site Characterization and Tools Selection (ISC-1, 2015). This guidance is a resource to inform regulators, responsible parties, other problem holders, consultants, community stakeholders, and other interested parties of the critical concepts related to characterization approaches and tools for collecting subsurface data at DNAPL sites. After this associated training, participants will be able to use the guidance to develop and support an integrated approach to DNAPL site characterization, including: identify what site conditions must be considered when developing an informative DNAPL conceptual site model (CSM); define an objectives-based DNAPL characterization strategy; understand what tools and resources are available to improve the identification, collection, and evaluation of appropriate site characterization data; and navigate the DNAPL characterization tools table and select appropriate technologies to fill site-specific data gaps. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/live.

> New Documents and Web Resources

New NAVFAC SiteWise™ Version 3.1 and User Guide. SiteWise is an Excel-based remedy selection and optimization tool for green and sustainable remediation (GSR) planners. It was developed jointly by the Department of the Navy, Army Corps of Engineers, and Battelle. The software and companion guidance were recently updated with modules for sediment remediation technologies including dredging, capping, and monitored natural recovery. The updated guide includes instructions for using SiteWise and the basis of calculations. The updated tool will aid in evaluating the unique aspects of sediment remedies using GSR metrics. Visit the NAVFAC GSR Web page at the link below under "Tools" to view the new software and guidance. View the user guide and download SiteWise™ at http://www.navfac.navy.mil/navfac_worldwide/specialty_centers/exwc/products_and_services/ev/erb/gsr.html.

Superfund Research Program Research Brief 255: The Effect of Corrinoid Co-factors on Bioremediation of Chlorinated Compounds. Specific modifications to helper molecules, or co-factors, play an important role in how efficiently some bacteria can degrade toxic chlorinated pollutants. In a new study, researchers from the University of Tennessee found that specific chemical modifications to corrinoid co-factors, a group of molecules that includes vitamin B12, can affect how well bacteria degrade chlorinated pollutants such as tetrachloroethene (PCE) and trichloroethene (TCE). These findings could help improve cleanup of chlorinated contaminants at hazardous waste sites.For more information, see http://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=255. To get monthly updates on research advances from the SRP you can subscribe to their Research Brief mailing list at https://list.nih.gov/cgi-bin/wa.exe?SUBED1=SRP-BRIEF&A=1.

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 https://clu-in.org/products/tins/. The following resources were included in recent issues:

- Contaminants in the Urban Environment: Perfluoroalkyl Substances
- Potential Designated Chemicals: Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs)
- Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS): Contaminated Sites Guidelines [Australia]
- Short-Chain Polyfluoroalkyl Substances (PFAS)
- Demonstration and Validation of a Fractured Rock Passive Flux Meter: ESTCP Cost and Performance Report
- The FLUTe(tm) Activated CarbonTechnology (FACT")
- Assessing the Potential for Metals Mobilization During the Application of In Situ Chemical Oxidation Technologies
- Nano-Enabled Environmental Products and Technologies: Opportunities and Drawbacks

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 14 resources, events, projects and news items were added to EUGRIS in March 2016. 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:

The Remediated Sites and BrownfieldsSuccess Stories in Europe (2015). This document presents cases and successful stories of remediated sites and brownfields while facilitating the exchange of information on contaminated soils and soil

remediation between the Eionet contributing countries. It is not meant to provide an exhaustive inventory of remediated sites in all countries. Thirteen countries comprising 19 European regions present a total of 29 cases which illustrate how soil and brownfields remediation along with sustainable land management have become essential for reversing the trend of soil degradation and ensuring the provision of ecosystem services by soil. View or download at http://esdac.jrc.ec.europa.eu/content/remediated-sites-and-brownfields%E2%80%93success-stories-europe

> Conferences and Symposia

LNAPLs: Science, Management, and Technology - ITRC 2-day Classroom Training, Atlanta (area), GA, April 5-6, 2016. 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.

ITRC Annual Meeting, Minneapolis, MN, April 18-22, 2016. The 2016 ITRC Annual Meeting will bring together environmental professionals from across the country for an opportunity to network and collaborate on innovative approaches to solving environmental challenges. Meeting opportunities include: work sessions for all 2016 ITRC Teams, information about ITRC's direction from the new ITRC Director and Board of Advisors, Opportunities to network with the environmental community, an opportunity to hear about our latest draft documents: Bioavailability in Contaminated Soil and Characterization and Remediation in Fractured Rock. For more information and to register, see http://itrcweb.org/Meetings/Upcoming.

9th Symposium on Design and Construction Issues at Hazardous Waste Sites, Philadelphia, PA, April 20-22, 2016. The applications of engineering and science associated with cleaning up hazardous waste sites continue to evolve rapidly. The goal of this symposium, co-hosted by the Society of American Military Engineers (SAME) Philadelphia Post and the U.S. EPA, is to facilitate an interactive engagement between professionals from government and the private sector related to relevant and topical issues affecting our field. For more information and to register, see http://secure.sameposts.org/franchises/philadelphia/events/634.

Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management - ITRC 2-day Classroom Training, Denver, CO, May 9-10, 2016. This 2-day ITRC classroom training is based on the ITRC Technical and Regulatory Guidance Web-Based Document, Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management (PVI-1, 2014) and led by internationally recognized experts. Within the training class - hear about EPA's Technical Guide For Addressing Petroleum Vapor Intrusion At Leaking Underground Storage Tank Sites (June 2015). The ITRC guidance document and EPA guide are complementary documents with the ITRC training course providing the "how-to" knowledge and skills for screening, investigating, and managing the petroleum vapor intrusion pathway. The class will enable you to develop the skills to screen-out petroleum sites based on the

scientifically-supported ITRC strategy and checklist; focus the limited resources investigating those PVI sites that truly represent an unacceptable risk; and communicate ITRC PVI strategy and justify science-based decisions to management, clients, and the public. 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 https://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 https://clu-in.org/techdirect at any time night or day.
