U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, February 1, 2021

Welcome to TechDirect! Since the January 1 message, TechDirect gained 85 new subscribers for a total of 39,789. 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.

> Funding Opportunity

FY 2022 Environmental Security Technology Certification Program (ESTCP) Solicitation. The Department of Defense's (DoD) Environmental Security Technology Certification Program (ESTCP) released a solicitation on January 7, 2021, requesting pre-proposals for innovative technology demonstrations that address DoD environmental and installation energy requirements as candidates for funding. Researchers from Federal organizations, universities, and private industry can apply for ESTCP funding. All proposals must respond to a Topic Area associated with the solicitation. ESTCP projects are formal demonstrations in which innovative technologies are rigorously evaluated. ESTCP demonstrations are conducted at DoD facilities and sites to document improved efficiency, reduced liability, improved environmental outcomes, and cost savings. The due date for all pre-proposals is March 4, 2021 by 2:00 p.m. ET. For more information and application instructions, see https://www.serdp-estcp.org/Funding-Opportunities/ESTCP-Solicitations.

> Upcoming Live Internet Seminars

Advances in Modeling Groundwater Flow and Transport with MODFLOW - February 3, 2021, 1:00PM-2:30PM EST (18:00-19:30 GMT). MODFLOW is a popular open-source groundwater modeling software program developed, supported, and maintained by the U.S. Geological Survey. The MODFLOW program, first released over 35 years ago, has evolved into a rich suite of software programs for the simulation of groundwater flow, solute transport, and a wide range of other groundwater related processes. In 2017, the U.S. Geological Survey released a new core version of the

MODFLOW program. This new version, called MODFLOW 6 (the sixth core version), extends the core MODFLOW capabilities to include robust solutions for complex water table problems, support for generalized meshes with focused resolution within areas of interest, and support for multiple models and multiple types of models within the same simulation. In addition to the Groundwater Flow Model, MODFLOW 6 now contains a Groundwater Transport Model, which can run simultaneously with the flow model or as a separate simulation using the results from a previous groundwater flow simulation. The purpose of this presentation is to describe the MODFLOW suite of programs and highlight some of the new capabilities currently available and under development for MODFLOW 6. For more information and to register, see https://clu-in.org/live.

ITRC Bioavailability of Contaminants in Soil: Considerations for Human Health Risk Assessment - February 9, 2021, 1:00PM-3:15PM EST (18:00-20:15 GMT). The basis for this training course is the ITRC guidance: Bioavailability of Contaminants in Soil: Considerations for Human Health Risk Assessment (BCS-1). This guidance describes the general concepts of the bioavailability of contaminants in soil, reviews the state of the science, and discusses how to incorporate bioavailability into the human health risk assessment process. The target audience for this guidance and training course are: project managers interested in decreasing uncertainty in the risk assessment which may lead to reduced remedial action costs, and risk assessors new to bioavailability or those who want additional confidence and training in the current methods and common practices for using bioavailability assessment to more accurately determine human health risk at a contaminated site. As a participant in this training you should learn to: apply the decision process to determine when a site-specific bioavailability assessment may be appropriate, use the ITRC Review Checklist to develop or review a risk assessment that includes soil bioavailability, consider factors that affect arsenic, lead and PAH bioavailability, select appropriate methods to evaluate soil bioavailability, and use tools to develop site-specific soil bioavailability estimates and incorporate them into human health risk assessment. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

SERDP/ESTCP Advances in the Detection of Submerged Unexploded Ordnance in Marine Environments - February 11, 2021 12:00PM-1:30PM EST (17:00-18:30 GMT). SERDP and ESTCP launched this webinar series to promote the transfer of innovative, cost-effective and sustainable solutions developed through projects funded in five program areas. The webinar series targets Department of Defense and Department of Energy practitioners, the regulatory community and environmental researchers with the goal of providing cutting edge and practical information that is easily accessible at no cost. For more information and to register, see https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series.

ITRC Connecting the Science to Managing LNAPL Sites a 3 Part Series - February 11, 18, March 9. The newly updated LNAPLs (Light Non-Aqueous Phase Liquids) 3-part training course series is based on the ITRC guidance: LNAPL Site Management: LCSM Evolution, Decision Process, and Remedial Technologies (LNAPL-3, 2018) and focuses on connecting the science to managing LNAPL sites and helping you: build upon your understanding of LNAPL behavior in the subsurface (Part 1), develop your LNAPL conceptual site model and LNAPL remedial goals (Part 2), and select/implement LNAPL technologies (Part 3). After this training series, the expectation is that you will have the skills and understanding to use ITRC science-based resources to improve decision making at your LNAPL sites. For regulators and other government agency staff, this improved understanding can hopefully be incorporated into your own LNAPL programs. It is expected that participants will attend this 3-part training series in sequence. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

ITRC Optimizing Injection Strategies and In situ Remediation Performance - February 16, 2021, 1:00PM-3:15PM EST (18:00-20:15 GMT). ITRC developed the

guidance: Optimizing Injection Strategies and In Situ Remediation Performance (OIS-ISRP-1) and this associated training course to identify challenges that may impede or limit remedy effectiveness and discuss the potential optimization strategies, and specific actions that can be pursued, to improve the performance of in situ remediation by: refining and evaluating remedial design site characterization data; selecting the correct amendment; choosing delivery methods for site-specific conditions; creating design specifications; conducting performance evaluations, and optimizing underperforming in situ remedies. The target audience for this guidance and training course is: environmental consultants, responsible parties, federal and state regulators, as well as community and tribal stakeholders. This training will support users in efficiently and confidently applying the guidance at their remediation sites. An optimization case study is shared to illustrate the use of the associated guidance document. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

SERDP/ESTCP Managing Chlorinated Solvents in Groundwater Using Biological Treatment - February 25, 2021 12:00PM-1:30PM EST (17:00-18:30 GMT). SERDP and ESTCP launched this webinar series to promote the transfer of innovative, cost-effective and sustainable solutions developed through projects funded in five program areas. The webinar series targets Department of Defense and Department of Energy practitioners, the regulatory community and environmental researchers with the goal of providing cutting edge and practical information that is easily accessible at no cost. For more information and to register, see https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series.

> New Documents and Web Resources

Updated CLU-IN Fractured Rock Focus Area. This focus area identifies resources that can help environmental practitioners with developing strategies for the characterization and remediation of fractured rock, where groundwater flow and the fate and transport of contaminants are influenced by the characteristics of the rock. The remediation section is broken into various technologies with references on how they are used in fractured rock situations and provides example sites where the technology has been applied. View and use at https://clu-in.org/fracrock/.

Reminder - Interim Guidance on Destroying and Disposing of Certain PFAS and PFAS-Containing Materials available for public comment. On December 18, 2020 EPA released for public comment new interim guidance that will help protect the public from exposure to these emerging chemicals of concern. Specifically, the new interim guidance outlines the current state of the science on techniques and treatments that may be used to destroy or dispose of PFAS and PFAS-containing materials from non-consumer products, including aqueous film-forming foam (for firefighting). This interim guidance will be available for public comment until February 22, 2021. View or download from https://www.epa.gov/pfas/interim-guidance-destroying-and-disposing-certain-pfas-and-pfas-containing-materials-are-not.

ITRC Guidance: Technical Resources for Vapor Intrusion Mitigation. This guidance document is designed to aid state regulators in understanding various mitigation strategies, how they are installed and fundamentally work, and what factors to consider as part of the review process. This training and web document are intended to guide regulators and project managers through the critical elements of selection, design, implementation, and operation of vapor intrusion mitigation (VIM). This document provides an overview of the various processes, steps and critical elements of VIM, including detailed fact sheets, technology information sheets and checklists. View and

use at https://vim-1.itrcweb.org.

Advantages and Limitations of the Incremental Sampling Methodology for Navy Projects (200924-WEB-NAVFAC-EXWC-EV-2012). Incremental sampling methodology (ISM) is a structured composite sampling and processing protocol that is designed to reduce data variability and provide a reasonably unbiased estimate of mean contaminant concentrations in a volume of soil. ISM was designed to provide representative samples from specific soil volumes called decision units (DUs). This memorandum describes the advantages and limitations of using an ISM approach, while accounting for Department of the Navy (DON) site types that may or may not be suitable for its use. Other factors for DON Remedial Project Managers (RPMs) to consider in the selection of ISM over traditional discrete or grab soil sampling methods are also examined. View or download from https://www.navfac.navy.mil/content/dam/navfac/Specialty%20Centers/Engineering%20and%20Expeditionary%20Warfare%20Center/Environmental/Restoration/er_pdfs/i/Final%20ISM%20Tech%20Memo%20August%202020.pdf

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:

- Final Remedial Design Report Soil Vapor Extraction and Treatment System and In Situ Bioremediation Bandera Road Ground Water Plume Superfund Site Bexar County, Texas
- 2019 Annual Summary Report Dartmouth College, Rennie Farm Site Hanover, New Hampshire
- Harmful Algal Bloom Interception, Treatment, and Transformation System, "Habitats"
- Incremental Sampling Methodology (ISM) Update
- Treatment Well (HRX Well®) for Managing Contaminant Plumes In Complex Geological Environments
- Nonpoint Source Success Story: Treatment Of Mine Drainage Improves Hubler Run
- Abandoned Hardrock Mines Information On Number Of Mines, Expenditures, And Factors That Limit Efforts To Address Hazards

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than three resources, events, projects and news items were added to EUGRIS in January 2021. 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:

Remediation Management for Local and Wide-Spread PFAS Contaminations. The German Environment Agency published this report 2020. PFAS -as group of substances- are becoming increasingly important in the treatment of contaminated sites and harmful soil changes. Due to the different substance properties of PFAS, the possible remediation procedures must be evaluated on a substance-specific basis. The advantages and disadvantages, the technical and approval requirements as well as their sustainability are shown for the possible remediation methods. View or download from https://www.umweltbundesamt.de/sites/default/files/medien/5750/publikationen/2020_11_11_texte_205_2020_handbook_pfas.pdf

> Conferences and Symposia

13th Symposium on Design and Construction Issues at Hazardous Waste Sites - March 29-31, 2021. This year, the conference will be held virtually with daily technical presentations from 1:00 PM to 5:00 PM EST. Registration for the virtual event will open in early 2021. The applications of engineering and science associated with cleaning up hazardous waste sites continue to evolve rapidly. Our goal is to facilitate an interactive engagement between professionals from government and the private sector related to relevant and topical issues affecting our field. We will make every effort to mirror all aspects of past symposiums in terms of format and spirit. For more information, see https://www.eventbrite.com/e/design-and-construction-issues-at-hazardous-waste-sites-dchws-2020-registration-60190087171 .

Call for Ideas: 2021 National Brownfields Training Conference, Oklahoma City, OK, September 27-30, 2021. The National Brownfields Training Conference is the largest event in the nation focused on land revitalization and economic development. The 2021 National Brownfields Conference will feature over 100 educational sessions, trainings, and site tours. You are invited to submit ideas for panels, roundtables, and topic talks that will motivate brownfields stakeholders to engage, learn, and share their experiences and knowledge of community revitalization challenges and solutions. For more information and submission instructions, see https://brownfields2021.org/sessions/call-for-ideas/.

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 Jean Balent at (703) 603-9924 or balent.jean@epa.gov. Remember, you may subscribe, unsubscribe or change your subscription address at https://clu-in.org/techdirect at any time night or day.