U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, January 1, 2020

Happy Holidays and may you have a prosperous new year!

Welcome to TechDirect! Since the December 1 message, TechDirect gained 41 new subscribers for a total of 39,278. 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 Opportunities

The National Institute of Environmental Health Sciences (NIEHS) Superfund Research Program (SRP) announces intent to publish a funding opportunity announcement. On Dec 13th, 2019 the National Institute of Health released NOT-ES-20-007: "Notice of Intent to Publish a Funding Opportunity Announcement for Enhancing Bioremediation through Innovative Materials Science Approaches." For more information, visit https://www.niehs.nih.gov/research/supported/centers/srp/funding/funding2/index.cfm

The Department of Defense's (DoD) Strategic Environmental Research and Development Program (SERDP) is seeking to fund environmental research and development proposals. SERDP is DoD's environmental science and technology program, planned and executed in partnership with the Department of Energy and the Environmental Protection Agency, with participation by numerous other Federal and non-Federal organizations. Proposals responding to focused Statements of Need (SONs) in multiple areas including Environmental Restoration - Research and technologies for the characterization, risk assessment, remediation, and management of contaminants in soil, sediments, and water. All Core Solicitation pre-proposals are due to SERDP January 7, 2020 by 2:00 p.m. ET. For more information, visit https://serdp-estcp.org/Funding-Opportunities/SERDP-Solicitations.

> Upcoming Live Internet Seminars

OSC Academy Presents…Stand and Deliver Effective Presentations - January 7 and February 21, 2020. This webinar will provide participants with guidelines on how to make better presentations to the public, their peers, or management. The webinar will help to improve your presentation skills and provide you with tools and techniques to be an interesting and effective presenter. What is in it for you: more polished platform skills, improved ability to manage content, greater skill using a variety of training methods, enhanced ability to create and use visual aids, and the ability to manage your audience. The webinar is intended to help participants increase their comfort in public speaking, control and connect with their audience, handle audience participation, and ultimately deliver the message and take-away points of training courses they are planning to instruct. The webinar will teach participants how to manage nerves, voice, gestures, transitions, visual aids, and content. The webinar also addresses how to manage the audience to include difficult participants, the solicitation of questions, and the response to questions and will include techniques for adapting to diverse audiences. For more information and to register, see https://clu-in.org/live.

ITRC Connecting the Science to Managing LNAPL Sites a 3 Part Series - January 9, 16, and 30, 2020. 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 Integrated DNAPL Site Characterization - January 14, 2020, 1:00PM-3:15PM EST (18:00-20:15 GMT). The Integrated DNAPL Site Characterization Team has synthesized the knowledge about dense non-aqueous 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 https://www.itrcweb.org or https://clu-in.org/live.

An Overview of the Fundamentals of Sequence Stratigraphy and its Application to Developing Robust Conceptual Site Models and Remedial Strategies - January 15, 2020, 1:00PM-3:00PM EST (18:00-20:00 GMT). Sequence stratigraphy has arguably revolutionized stratigraphic analysis in the oil and gas industry since the 1970s, but to date, few environmental companies have utilized this power tool. Although many companies have intended on using sequence stratigraphic correlation techniques to define the subsurface heterogeneity, they have mistakenly used lithostratigraphy, significantly limiting their ability to construct accurate CSMs and

develop effective remedial strategies. In this seminar, we will leverage case studies to make participants aware of the pitfalls of lithostratigraphy and highlight the role of sequence stratigraphy in generating robust and realistic hydrogeological models. For more information and to register, see https://clu-in.org/live.

Mining Webinar Series: Eagle Mine Superfund Site Case Study - January 21, 2020, 2:00PM-3:30PM EST (19:00-20:30 GMT). The Eagle Mine Superfund Site near Minturn, Colorado is a prime example of successful EPA and State collaboration overseeing a Potentially Responsible Party conducting cleanup of an abandoned mining and milling complex. Listed on the National Priorities List in 1986, the Site began in 1983 when the State filed for natural resource damages against a PRP pursuant to CERCLA. This case study will present on the Site's technical background, robust remedy, complex regulatory framework and complicated enforcement history. Eagle Mine is a good example of a site nearing completion in the Superfund process; this case study will showcase considerations for a site approaching the finish line. Items covered will include: transition from an NPDES permit to a CERCLA Permit Equivalent Document, nexus of CERCLA and Clean Water Act, impacts of an unenforceable Consent Decree, and site strategy for completion. For more information and to register, see https://clu-in.org/live.

ITRC Bioavailability of Contaminants in Soil: Considerations for Human Health Risk Assessment - January 23, 2020, 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.

ProUCL Utilization 2020: Parts 1-3 - January 27, February 10, and March 9, 2020. ProUCL version 5.1.002 (5.1) is the latest update of the ProUCL statistical software package for analysis of environmental data sets with and without nondetect (ND) observations. In the first installment of a three part ProUCL e-learning seminar series, instructors will present the live interactive use of ProUCL v5.1 from initial data loading, all the way through the major steps of statistical data analysis in ProUCL. The second installment will be presenting live interactive use of ProUCL v5.1 focusing specifically on the finer points of regression and trend analysis within the ProUCL software. The final installment will focus mainly on background dataset analysis and associated background threshold value (BTV) comparisons within the ProUCL software. For more information and to register, see https://clu-in.org/live.

Superfund Redevelopment Roundtable Webinar Series: Sessions 1 and 2 - January 28 and March 24, 2020. A two-part webinar series for developers and local governments interested in redeveloping Superfund sites and putting them back into productive use. Hear best practices and lessons learned from developers and local governments who have gone through the process. Hear from U.S. EPA, who will

answer questions, provide information on available resources and support, and update participants on the latest tools and guidance. Share your thoughts and experiences on how U.S. EPA can better support reuse of sites in your community and across the nation. For more information and to register, see https://clu-in.org/live.

CERCLA 108(b) Financial Responsibility Requirements Proposals for the Petroleum and Coal Products Manufacturing Industry and the Chemical Manufacturing Industry - January 29, 2020, 1:00PM-3:00PM EST (18:00-20:00 GMT). On January 11, 2017, the Agency made a determination to proceed with rulemakings that will either develop proposed financial responsibility requirements under CERCLA 108(b), or determine such requirements are not warranted. The second and third of the three industries for which EPA is developing rulemaking proposals are for the Petroleum and Coal Products Manufacturing Industry and the Chemical Manufacturing Industry. This webinar will provide an overview of the rulemaking proposals. For more information and to register, see https://clu-in.org/live.

Federal Facilities Online Academy - February 3, 2020 through September 14, 2020. This voluntary training program has been developed for EPA RPMs, project managers from other federal agencies, State government, and Tribal groups who work on federal facility Superfund cleanups. Please consider participating in all 12 courses, 11 Webinars and 1 In-Person Training, to obtain a certificate upon completion of the entire Federal Facility Academy series. For more information and to register for upcoming sessions or view archived sessions, see https://trainex.org/offeringslist.cfm?courseid=1819.

> New Documents and Web Resources

Climate Resilience Technical Fact Sheets. (EPA 542-F-19-003, EPA 542-F-19-004, EPA 542-F-19-005). Remedies at contaminated sites may be vulnerable to the implications of climate change and extreme weather events. The EPA Superfund Program developed an approach that raises awareness of these vulnerabilities and applies climate change and weather science as a standard operating practice in cleanup projects. EPA recently updated its three-part fact sheet series to continue helping project managers and other cleanup stakeholders assess site-specific remedy vulnerabilities and, where needed, implement measures to increase the remedy's resilience. The series addresses contaminated sediment sites (October 2019, 10 pages), contaminated waste containment systems (October 2019, 10 pages) and groundwater remediation systems (October 2019, 8 pages). The updated series provides more examples of potential measures to increase remedy resilience, highlights Superfund projects involving measures to address recently-identified vulnerabilities, and describes new decision-making tools developed by EPA or other federal agencies to address particular implications of a changing climate. The climate resilience concepts may also apply to site cleanups conducted under other regulatory programs or through voluntary efforts. View or download at https://www.epa.gov/superfund/superfund-climate-resilience.

ITRC Implementing Advanced Site Characterization Tools. Advanced site characterization tools (ASCTs) are capable of rapid implementation and data generation and can be used to provide data for a more precise and accurate conceptual site model. Although these tools have been available for several years, they often are not used because users perceive them to be expensive and unavailable, or do not understand how ASCTs work and how to interpret the acquired data. This comprehensive guidance can assist stakeholders with the selection and application of ASCTs, as well as the interpretation of data gathered by ASCTs to evaluate the best

cleanup options for a project. The guidance divides ASCTs into four categories: Direct Sensing, Borehole Geophysical, Surface Geophysical, and Remote Sensing. This free guidance includes an ASCT Selection Tool, summary tables that provide additional information to evaluate the applicability of each tool, case studies, checklists, and training videos. View and use at https://asct-1.itrcweb.org/

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 Close Out Report Intel Santa Clara 3 Superfund Site Santa Clara, California
- Level 2 Remediation Action Plan, AA Discount, 181 West Kings Highway, Central Hill, Florida
- Advances in Remediating Groundwater Contaminated with Chlorinated Solvents (Webinar)
- Feasibility Study 7th Street and Missouri Avenue Water Quality Assurance Revolving Fund Site Phoenix, Arizona
- Status of SERDP and ESTCP Efforts on PFAS and Innovative Approaches for THE Treatment of Waste Derived from PFAS Subsurface Investigations (Webinar)

NIEHS SRP Technology Profile of Co-Metabolism Treatment Technology. A Superfund Research Program (SRP)-funded small business, has recently shown removal rates of 1,2,3-Trichloropropane (TCP) and co-contaminants using a co-metabolism treatment technology.The technology offers significant reductions in energy and maintenance costs compared with chemical or UV oxidation. Flexibly designed as a treatment option, it can be used on groundwater situated in aquifers or on water that has been removed from aquifers. For more information, see https://www.niehs.nih.gov/research/supported/centers/srp/science_digest/2019/12/technology/.

Matrix for Selecting Vapor Intrusion Investigation Technologies. The DoD Tri-Service Environmental Risk Assessment Workgroup has released a new publication as part of its series of Vapor Intrusion Fact Sheets. The matrix ranks these various technologies to facilitate selection of the most effective approach. Selection is based on the specific investigation objectives including characterization of subsurface sources, evaluation of vadose zone vapor migration pathways, and the investigation of a building's sub-slab region and interior. View the fact sheets : https://www.denix.osd.mil/irp/vaporintrusion/

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 3 resources, events, projects and news items were added to EUGRIS in December. 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.

> Conferences and Symposia

Best Practices for Site Characterization Throughout the Remediation Process, Atlanta, GA, March 24-26, 2020. This training course is based on best management practices (BMP) implemented by U.S. EPA, partnership organizations, federal and state

partners, and consultants. Participants will learn how to streamline projects in a legal, technically sound, and cost-effective manner. By taking the course, participants achieve the following objectives: integrate best practices into traditional project activities, effectively collect and communicate critical project information, design dynamic work strategies, recognize and overcome the challenges presented while implementing a dynamic work strategy, and use BMPs to support all phases of the environmental cleanup life cycle. For more information and to register, see https://www.trainex.org/BPSCR.

13th Symposium on Design and Construction Issues at Hazardous Waste Sites, Philadelphia, PA, April 1-3, 2020. 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 and to register, see https://www.same.org/Get-Connected/Find-a-Post/Philadelphia/DCHWS.

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.
