U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, May 1, 2020

Welcome to TechDirect! Since the April 1 message, TechDirect gained 89 new subscribers for a total of 39,462. 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

Federal Facilities Online Academy - May 4, 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.

Innovative Technologies for PFAS Destruction in Investigation Derived Wastes - May 7, 2020. Join SERDP and ESTCP for a webinar for on novel approaches to remove PFAS from investigation derived wastes. First, Dr. Brian Chaplin of the University of Illinois will discuss his efforts to develop a reactive electrochemical membrane technology for the oxidation of PFAS in groundwater under different operational modes and solution conditions. Second, Dr. Thomas Holsen of Clarkson University will summarize his research results on soil washing of investigation derived wastes with a combination of water, methanol and sodium chloride followed by treatment of the resulting solution in a plasma-based reactor to destroy desorbed PFAS. For more information and to register, see https://serdp-estcp.org/Tools-and-Training/Webinar-Series/05-07-2020.

NIEHS Superfund Research Program (SRP) Exposures and Latent Disease Risk - May 11, 28, June 8, 16, 2020. The NIEHS Superfund Research Program (SRP) is hosting a Risk e-Learning webinar series focused on understanding the health effects of exposures when there is a lag between exposure and the onset of the disease. The first session will introduce exposures and latent disease risk, including information about windows of susceptibility, later-life health outcomes, and will set the stage for the other sessions. In the second session, presenters will discuss new methods to help

better understand potential disease risk by identifying hallmarks or key characteristics associated with disease. These methods may provide a way to link exposures to disease earlier on in the disease progression. In the third session, presenters will describe studies linking early-life arsenic exposure and later-life disease risk. The focus on arsenic as a case study may also provide insights into linking other exposures to latent disease risk and identifying windows of susceptibility. In the fourth and final session, presenters will discuss emerging toxicology and modeling methods, as well as needs, to better link exposure to latent disease risk. For more information and to register, see https://clu-in.org/live.

Integration of Resiliency and Sustainability into Remedy Evaluation, Design, and O&M: A Compilation of Case Study Findings - May 13, 2020, 1:00PM-3:00PM EDT (17:00-19:00 GMT). The role sustainability and resiliency play in a cleanup project is dependent upon site-specific physical characteristics and stakeholder concerns. However, the overlying framework to evaluate and implement sustainable resilient remediation practices is applicable to all site types. This technical presentation will start with an overview of the sustainable resilient remediation framework, and recent guidance updates and initiatives, followed by four case studies that highlight integration of resiliency and sustainability at various phases of the project life cycle. The target audience for this technical presentation includes environmental regulators at all levels of government, private and public responsible or obligated parties (Ops), current site owners and operators, environmental consultants, and prospective purchasers of property and their agents. Other stakeholders who have an interest in a property can also use this guidance to help understand how sustainable resilient remediation practices can be applied. For more information and to register, see https://clu-in.org/live.

ITRC Bioavailability of Contaminants in Soil: Considerations for Human Health Risk Assessment - May 19, 2020, 1:00PM-3:15PM EDT (17:00-19:15 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.

ITRC Optimizing Injection Strategies and In situ Remediation Performance - May 21, 2020, 1:00PM-3:15PM EDT (17:00-19:15 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.

Analysis of Defense Related Ecosystem Services - May 21, 2020. Join SERDP and ESTCP for a webinar on innovative modeling tools to analyze ecosystem services on Department of DoD lands and installations. First, Dr. Nate McDowell (Pacific Northwest National Laboratory) will discuss his work to develop a framework for evaluating management alternatives for different ecosystem services and predicting their impacts on climate and the environment. Second, Dr. Mark Borsuk (Duke University) will provide an overview of his research on applying a computational assessment tool called MoTIVES (Model-based Tracking and Integrated Valuation of Ecosystem Services) to document the value that military bases provide to local communities in the form of ecosystem services. For more information and to register, see https://serdp-estcp.org/Tools-and-Training/Webinar-Series/05-21-2020.

FRTR Spring 2020 Meeting: Bioremediation Advances - New Strategies, Optimization, and Performance Monitoring - May 29 and June 5, 2020. The Spring 2020 meeting of the Federal Remediation Technologies Roundtable (FRTR) will be held as a two-part webinar on Friday, May 29 and Friday, June 5, 2020. As always, FRTR meetings are open to the public. FRTR's objectives for this meeting are to: review the state of the practice of bioremediation: Broad overview of where it is commonly applied, where it is still experimental, and what are the challenges; discuss advances in bioremediation for organic and inorganic contaminants, including new approaches, optimization, and tools for monitoring technologies to determine successful performance; and review brief case studies to demonstrate how new technologies are being applied and optimized. For more information and to register, see https://clu-in.org/live.

> New Documents and Web Resources

Superfund Research Program (SRP) Research Brief 304: Electrochemical System Degrades PCE in Groundwater. An electrochemical system can effectively break down tetrachloroethylene (PCE) in groundwater, according to a new study from the NIEHS-funded Northeastern University SRP Center. After testing different design parameters to determine the best conditions for degrading PCE, the researchers achieved 86% removal of the contaminant from groundwater sources. View more information at https://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=304

ITRC Technical Resources for Addressing Environmental Releases of 1,4 Dioxane. This series of fact sheets summarizes the latest science and emerging technologies for 1,4-Dioxane. The fact sheets are tailored to the needs of state regulatory program personnel who are tasked with making informed and timely decisions regarding 1,4-Dioxane sites. The content is also useful to consultants and parties responsible for the release of these contaminants, as well as public and tribal stakeholders. View or download at https://14dx-1.itrcweb.org.

ITRC Per- and Polyfluoroalkyl Substances (PFAS) Technical and Regulatory Guidance Document. This document is designed specifically to support state and federal environmental staff, as well as others (including stakeholders, project managers, and decision makers), to gain a working knowledge of the current state of PFAS science and practice. Developed by a team of over 400 environmental practitioners drawn from state and federal government, academia, industry,

environmental consulting, and public interest groups, it also provides a summary of the current understanding of all aspects of PFAS from a broad perspective. While every effort was made to keep the information accessible to a wide audience, it is assumed the reader has some basic technical background in chemistry, environmental sciences, and risk assessment. View or download at https://pfas-1.itrcweb.org.

Passive Sampling of Groundwater Wells for Determination of Water Chemistry. This report describes the differences between purging and passive sampling methods in groundwater and explains how and why passive samplers work. The report points out the advantages and limitations of passive samplers in general and for each particular type of passive sampler. Important considerations to be taken into account prior to the use of passive samplers are discussed, such as defining the data-quality objectives, the water-quality constituents to be sampled, sample volumes required for analysis, well construction of the sampling network, and the geologic formations that will be sampled. Potential applications of passive samplers also are discussed, such as chemical-vertical profiling of wells. A general field protocol for the deployment, recovery, and sample collection using these devices is described, and some overall guidance for the practitioner with application examples is given (April 2020, 94 pages). View or download at https://pubs.er.usgs.gov/publication/tm1D8.

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:

- Legal and Regulatory Status of Abandoned Mine Methane in Selected Countries: Considerations for Decision Makers
- Community Actions that Drive Brownfields Redevelopment
- Brownfields: Properties with New Purpose - Improving Local Economies in Communities with Brownfield Sites
- Alternative Treatment Technologies to Open Burn and Open Detonation of Energetic Hazardous Wastes
- Record of Decision: CPS Madison Superfund Site Operable Units One and Two, Old Bridge Township, Middlesex County, New Jersey
- The Development of Anaerobic Bioremediation Approaches for Chlorinated Solvent and 1,4-Dioxane Co-Contaminated Sites
- Ecological Risk Assessment Approaches at PFAS-Impacted Sites

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 10 resources, events, projects and news items were added to EUGRIS in April 2020. 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

ASTSWMO 2020 RCRA Corrective Action Conference - Lexington, KY, September 1-3, 2020. The Conference will feature the theme, "RCRA Corrective Action: 2020 and The Road Ahead", to acknowledge 2020 as the milestone year for achieving RCRA corrective action goals and the work that remains beyond 2020. Session topics will reflect the theme. On September 1, the Conference will be open only to State and Territorial (State) members and EPA Headquarters and Regional staff for discussions of

regulators' issues. On September 2-3, ASTSWMO is pleased to invite, in addition to State members and EPA, officials from the U.S. Department of Defense (DoD) and other federal government agencies, industry, and other entities. For more information and to register, see http://astswmo.org/event/astswmo-2020-rcra-corrective-action-conference/.

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.
