U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, October 1, 2020

Welcome to TechDirect! Since the September 1 message, TechDirect gained 49 new subscribers for a total of 39,644. 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

Superfund Hazardous Substance Research and Training Program (P42). The National Institute of Environmental Health Sciences (NIEHS) is continuing the Superfund Hazardous Substance Research and Training Program, referred to as Superfund Research Program (SRP) Centers. SRP Center grants will support problem-based, solution-oriented research Centers that consist of multiple, integrated projects representing both the biomedical and environmental science disciplines. The Center cores are tasked with administrative (which includes research translation), data management and analysis, community engagement, research experience and training coordination, and research support functions. SRP is holding a webinar to provide information about the new funding opportunity on October 1. The application deadline is February 15, 2021. For more information and to register for the webinar, see https://clu-in.org/live. For more information and application instructions for the grants, see https://grants.nih.gov/grants/guide/rfa-files/RFA-ES-20-014.html.

> Upcoming Live Internet Seminars

SRP Funding Opportunities Webinar - October 1, 2020, 1:30PM-3:00PM EDT (17:30-19:00 GMT). The Superfund Research Program (SRP) is holding a webinar to provide information about the new "Superfund Hazardous Substance Research and Training Program (P42)" funding opportunity, RFA-ES-20-014. The RFA was released on September 2, 2020, and the application deadline is February 15, 2021. On the webinar, NIEHS staff will provide information and answer questions about the P42 RFA to address the broad, complex health and environmental issues that arise from the

multimedia nature of hazardous waste sites. SRP Center grants support problem-based, solution-oriented research Centers that consist of multiple, integrated projects representing both the biomedical and environmental science disciplines. The Center cores are tasked with administrative (which includes research translation), data management and analysis, community engagement, research experience and training coordination, and research support functions. The webinar will also focus on changes from previous solicitations. For more information and to register, see https://clu-in.org/live.

ITRC Remediation Management of Complex Sites - October 8, 2020, 1:00PM-3:15PM EDT (17:00-19:15 GMT). This training course and associated ITRC guidance: Remediation Management of Complex Sites (RMCS-1, 2017), provide a recommended holistic process for management of challenging sites, termed "adaptive site management." By participating in this training course we expect you will learn to apply the ITRC guidance document to: identify and integrate technical and nontechnical challenges into a holistic approach to remediation; use the Remediation Potential Assessment to identify whether adaptive site management is warranted due to site complexity; understand and apply adaptive site management principles; develop a long-term performance-based action plan; apply well-demonstrated techniques for effective stakeholder engagement; access additional resources, tools, and case studies most relevant for complex sites; and communicate the value of the guidance to regulators, practitioners, community members, and others. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

SERDP ESTCP Managing AFFF Impacts to Subsurface Environments and Assessment of Commercially Available Fluorine-Free Foams - Part 1 - October 8, 2020, 12:00 PM EDT (16:00 GMT). This is the first session in a 2-part webinar series on managing AFFF impacts to subsurface environments and assessment of commercially available fluorine-free foams. Dr. Damian Helbling (Cornell University) will present his work on developing and optimizing cyclodextrin-based adsorbents to remove PFAS from groundwater. Dr. Satya Chauhan (Battelle Memorial Institute) will summarize his research on optimizing compressed air foam and ultra-high pressure foam delivery systems to improve the quality of commercial off-the-shelf fluorine free foams. For more information and to register, see https://serdp-estcp.org/Tools-and-Training/Webinar-Series/10-08-2020.

Sea Level Rise and Resilient Brownfield Revitalization - October 13, 2020, 1:00PM-2:30PM EDT (17:00-18:30 GMT). Sea level rise could cause frequent or even permanent flooding of coastal brownfield sites, their access roads, or other critical services. These floodwaters can release and spread site contaminants and debris, endangering the health of the local people and other living things. Brownfield site managers, project staff, and property owners can manage sea level rise risk and uncertainty with preventive measures, thus reducing the cumulative costs and increasing management and reuse options. This webinar for EPA staff will introduce brownfield and land revitalization project staff and OLEM colleagues to simple tools to understand how sea level rise can impact a coastal site. This session will introduce you to steps to screen for and reduce sea level rise risks, and walk through a case study application in Philadelphia, PA. For more information and to register, see https://clu-in.org/live.

ITRC Bioavailability of Contaminants in Soil: Considerations for Human Health Risk Assessment - October 15, 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 Issues and Options in Human Health Risk Assessment - A Resource When Alternatives to Default Parameters and Scenarios are Proposed - October 20, 2020, 1:00PM-3:15PM EDT (17:00-19:15 GMT). After participating in this ITRC training course, the learner will be able to apply ITRC's Decision Making at Contaminated Sites: Issues and Options in Human Health Risk (RISK-3, 2015) document when developing or reviewing site-specific risk assessments by: identifying common issues encountered when alternatives to default parameters and scenarios are proposed during the planning, data evaluation, toxicity, exposure assessment, and risk characterization and providing possible options for addressing these issues; recognizing the value of proper planning and the role of stakeholders in the development and review of risk assessments; and providing information (that includes links to additional resources and tools) to support decision making when alternatives to default approaches, scenarios and parameters are proposed. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

Superfund Research Program Progress in Research Webinar Parts 1-4 - October 21, 28, November 9, 19, 2020. The NIEHS Superfund Research Program (SRP) Progress in Research webinar series highlights promising research from SRP Centers awarded grants in 2020. In each of the four sessions, awardees will describe their research projects, accomplishments, and next steps. Part 1 will feature awardees from the Harvard School of Public Health, University of North Carolina-Chapel Hill, and University of Arizona will describe their research projects, accomplishments, and next steps. Part 2 will feature awardees from the University of Kentucky, Oregon State University, and Baylor College of Medicine. Part 3 will feature awardees from Northeastern University and University of Alabama at Birmingham. Part 4 will feature awardees from North Carolina State University, University of Iowa, and Louisiana State University. For more information and to register, see https://clu-in.org/live.

ITRC Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management - October 22, 2020, 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 provide 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 https://www.itrcweb.org or https://clu-in.org/live.

ITRC Groundwater Statistics for Environmental Project Managers - November 5, 2020, 1:00PM-3:15PM EST (18:00-20:15 GMT). Statistical techniques may be used throughout the process of cleaning up contaminated groundwater. It is challenging for practitioners, who are not experts in statistics, to interpret and use statistical techniques. ITRC developed the Technical and Regulatory Web-based Guidance on Groundwater Statistics and Monitoring Compliance (GSMC-1, 2013) and this associated training specifically for environmental project managers who review or use statistical calculations for reports, who make recommendations or decisions based on statistics, or who need to demonstrate compliance for groundwater projects. The training class will encourage and support project managers and others who are not statisticians to: use the ITRC Technical and Regulatory Web-based Guidance on Groundwater Statistics and Monitoring Compliance (GSMC-1, 2013) to make better decisions for projects; apply key aspects of the statistical approach to groundwater data; and answer common questions on background, compliance, trend analysis, and monitoring optimization. ITRC's Technical and Regulatory Web-based Guidance on Groundwater Statistics and Monitoring Compliance (GSMC-1, 2013) and this associated training bring clarity to the planning, implementation, and communication of groundwater statistical methods and should lead to greater confidence and transparency in the use of groundwater statistics for site management. For more information and to register, see http://www.itrcweb.org or https://clu-in.org/live.

> New Documents and Web Resources

Superfund Research Program (SRP) Research Brief 309: Toxic Breakdown Products Formed During Contaminant Clean-Up. Aromatic compounds, such as benzene, toluene, ethylbenzene, and xylenes (BTEX) are frequently detected together in groundwater, where they can make their way into drinking water. In situ chemical oxidation (ISCO) is a common approach used to remove these contaminants from groundwater. This approach uses an oxidizing agent, such as hydrogen peroxide or persulfate, to trigger a chemical reaction that breaks down the contaminants. While researchers have studied the mechanism by which chemical oxidation breaks down aromatic compounds, only a fraction of the transformation products have been accounted for in previous research. The NIEHS-funded University of California, Berkeley Superfund Research Program Center set out to characterize and assess the importance of different chemical pathways responsible for breakdown of these and related contaminants. View more information at
https://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=309

Separating Anthropogenic Metals Contamination from Background: A Critical Review of Geochemical Evaluations and Proposal of Alternative Methodology (EPA-600-R-19-196). Meaningful estimates of background contaminant levels are a critical component of site assessments. A request was submitted by the Ecological Risk Assessment Forum (ERAF) to Ecological Risk Assessment Support Center (ERASC) relating to the issue of background soil chemical demarcation at metals contaminated

sites. Specifically, the request pertained to the validity of an empirical methodology (geochemical association plots) that utilizes covariation between chemical concentrations and concentrations of major soil elemental constituents (i.e., reference metals) to identify samples that deviate from "natural" variation. Consequently, a comprehensive investigation of this methodology was conducted and assumes assessments are conducted with chemical and reference metal data collected from reference sites (i.e., background data) and site-related locations. View or download at https://cfpub.epa.gov/ncea/erasc/recordisplay.cfm?deid=347774

Terrestrial Metals Bioavailability: A Literature-Derived Classification Procedure for Ecological Risk Assessment (EPA-600-R-20-042). A request was submitted by the Ecological Risk Assessment Forum (ERAF) to Ecological Risk Assessment Support Center(ERASC) relating to the issue of terrestrial metals bioavailability. The ERAF specifically requested a product that characterizes typical aerobic soils in terms of their potential to mitigate metals bioavailability to soil-dwelling biota. An extensive literature search and corresponding meta-analysis of the empirical data was recommended and performed. The result is a validated classification procedure, or quantitative tool, that broadly characterizes typical aerobic soils in terms of their potential to sequester common divalent cationic metal contaminants and mitigate their bioavailability to soil-dwelling biota. It is proposed to augment other ecological risk assessment approaches and risk-based remediation of metals contaminated soils.View or download at https://cfpub.epa.gov/ncea/erasc/recordisplay.cfm?deid=349052

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:

- Source Area Remediation Report Reed Manufacturing Services Franklin, Indiana
- Seventh Semi-Annual VRP Progress Report IMTT Savannah North Terminal Savannah, Chatham County, Georgia
- PlumeStop Phase 1 Pilot Study at Old Outfall 002
- Validation of Advanced Molecular Biological Tools to Monitor Chlorinated Solvent Bioremediation and Estimate cVOC Degradation Rates
- Post-Remediation Performance Assessment at a Petroleum Impacted Site
- Cinderella & Stickel Cleaners Biosparging Remedy
- Case Study: Boeing Groundwater Remediation, Wichita
- Off-site Groundwater Treatment Pilot Study Franklin Power Products, Inc./Amphenol Corporation
- Addressing Threatened and Endangered Species on DoD Lands
- PFAS Removal in Drinking Water Treatment Systems

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 September 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

Great Lakes PFAS Summit, October 26-30, 2020. The Great Lakes PFAS Summit will bring together environmental program managers, policy experts, researchers, and

contractors from around the Great Lakes region to share the challenges of addressing this contamination and present innovative technical solutions developed to address these "forever" chemicals. The goals of this conference are to provide the most current and reliable science and policy, facilitate networking and information sharing, and explore current and future research topics related to PFAS. For more information and to register, see https://www.michigan.gov/egle/0,9429,7-135-3308_3333-518324--,00.html.

2020 Design and Construction of Hazardous Waste Sites Conference (DCHWS), October 26-28, 2020. The annual fall conference will be co-sponsored by the SAME Philadelphia Post, the SAME Denver Metro Post, and the U.S. Environmental Protection Agency. This year, the conference will be held virtually with daily technical presentations from 2:00 PM to 5:00 PM MST. Registration will open on August 31, 2020. For more information, visit the DCHWS Conference website at http://dchws.org.

2020 SERDP and ESTCP Symposium, November 30-December 4, 2020. The Symposium will continue as a virtual conference in response to the COVID-19 pandemic. The SERDP and ESTCP Symposium is the nation's largest conference focusing on the Department of Defense's priority environmental and installation energy issues. The Symposium brings together environmental and energy researchers and technology developers with the defense end-user and regulatory communities to showcase cutting edge environmental technologies and ideas. The 2020 Symposium will offer 16 technical sessions, a number of short courses, more than 450 technical poster presentations, exhibitors from funding and partnering organizations, and a variety of networking opportunities for the more than 1,000 attendees. For more information and to register, see https://web.cvent.com/event/a0cfb891-60fa-4233-8cc6-189bbf947195/summary.

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.

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