U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, September 1, 2019

Welcome to TechDirect! Since the August 1 message, TechDirect gained 88 new subscribers for a total of 39,154. 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

Geotechnical Aspects of Tailings Dams and their Failures - September 5, 2019, 2:00PM-3:00PM EDT (18:00-19:00 GMT). The National Academy of Sciences (NAS) Committee on Geological and Geotechnical Engineering (COGGE) is hosting this webinar which will review some significant tailings dam failures and failure rates relative to other facilities. Key aspects of geotechnical failures of tailings dams and shear strength concepts for loose granular materials will be reviewed. For more information and to register, see https://nasem.zoom.us/webinar/register/6915658808272/WN_dbQh-89rQ5a9zd737EalWg.

Federal Facilities Online Academy - September 9, 2019 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 registering for 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, see https://trainex.org/offeringslist.cfm?courseid=1819.

ITRC Panel Event: Stormwater Best Management Practices Performance Evaluation - September 10, 2019, 1:00PM-2:00PM EDT (17:00-18:00 GMT). Are you interested in improving your stormwater best management practices (BMP) performance? Could you improve your performance evaluations on the front end with publicly available data and throughout the BMP lifecycle? If so, join us for this ITRC interactive online panel session showcasing the ITRC Document: Stormwater Best Management Practices (BMP) Performance Evaluation (Stormwater-1). This panel event will provide you with: access to a centralized resource for information on stormwater BMP effectiveness; guidance to use during post-construction BMP screening, selection, installation, operation, and monitoring and maintenance; case study examples using the guidance; and answers to your questions about using ITRC's

stormwater BMP tool and guidance. The panel session is intended to be a mix of interactive audience discussion and introductory material. Please come ready to ask questions and interact with the panel technical members. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

Characterization and Remediation of Contaminated Groundwater in Fractured Rock with US EPA & USGS - September 11 & 12, 2019, 11:30AM-7:30PM EDT (15:30-23:30 GMT). Contaminated groundwater in fractured rock at Superfund sites poses unique challenges due to the geologically complex nature of such sites. Technological advances have led to the development of tools that aid in gaining a more robust understanding of contaminated fractured rock systems. The Technology Innovation and Field Services Division (TIFSD) in EPA Headquarters has collaborated with the U.S. Geological Survey (USGS) to develop an EPA-specific training course that provides a state-of-the-practice overview of the characterization and remediation of contaminated groundwater in fractured rock. This training course will improve national consistency for these complex sites and drive the development of effective characterization and remediation techniques required for their restoration. For more information and to register, see https://clu-in.org/live.

ITRC TPH Risk Evaluation at Petroleum-Contaminated Sites - September 12, 2019, 1:00PM-3:15PM EDT (17:00-19:15 GMT). The basis for this training course is the ITRC guidance: TPH Risk Evaluation at Petroleum-Contaminated Sites (TPHRisk-1, 2018). The guidance builds on long-standing and current research and experience, and presents the current science for evaluating TPH risk at petroleum-contaminated sites. As a participant in this training you should learn to: recognize the ITRC document as a go-to resource for evaluating TPH risk at petroleum-contaminated sites, recognize how TPH-impacted media interacts with the environment and changes over time, select appropriate analytic method(s) to match site objectives, and apply the decision framework to determine when a site-specific target level may be more appropriate than a generic screening level for TPH. 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 - September 17, 2019, 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.

Military Munitions Support Services - CWM Response - September 18, 2019, 1:00PM-4:00PM EDT (17:00-20:00 GMT). This session will be focused on aspects of munitions response for sites with hazards from chemical warfare materiel (CWM) and chemical agent. The presentations will address the differences between responses at CWM sites and conventional MEC sites, a case study for a CWM site characterization, and a review of technologies for destruction of chemical agents via treatment. For more information and to register, see https://clu-in.org/live.

ITRC Groundwater Statistics for Environmental Project Managers - September 19, 2019, 1:00PM-3:15PM EDT (17:00-19:15 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.

Harnessing Natural River Processes to Remediate 120 km of the Big River in Jefferson County, Missouri - September 25, 2019, 1:30PM-3:00PM EDT (17:30-19:00 GMT). The Society of American Military Engineers (SAME) Denver and Philadelphia Posts along with the US Environmental Protection Agency (EPA) are hosting a series of webinars based on talks given at recent Design and Construction Issues at Hazardous Waste Sites (DCHWS) Symposiums. This session will highlight a talk from the Third Western Symposium DCHWS and will discuss a project now in the Feasibility Study (FS) stage, which has developed unit costs for key technologies that will be used in the Big River FS. A side-by-side discussion of remedial strategy for Big River watershed and remedial strategy for Spring River watershed will be included. The presentation will highlight how the team is applying pilot testing to refine the application of these innovative technologies prior to full scale remediation. For more information and to register, see https://clu-in.org/live.

FRTR Presents…Per- and Polyfluoroalkyl Substances (PFAS) Emerging Characterization and Remedial Technologies, Session 2 - September 26, 2019, 1:00PM-2:30PM EDT (17:00-18:30 GMT). This is part of a webinar series featuring presentations delivered at the Fall 2018 FRTR Meeting and related material. The meeting's objective was to identify and discuss the emerging science behind PFAS characterization and remedial technologies. This session will include presentations on "Perfluoroalkyl Substances (PFAS)-Insights on the Collection and Analysis of Environmental Samples" and "PFAS Site Characterization." An archive of session 1 is available at https://clu-in.org/conf/tio/FRTRPresents5_062019/. For more information and to register, see https://clu-in.org/live.

Superfund Redevelopment Initiative Series: Successful Superfund Redevelopment & the Prospective Purchaser Inquiry Tool: Solitron Microwave Site Case Study - September 27, 2019, 2:00PM-3:30PM EDT (18:00-19:30 GMT). Location, location, location…and liability protection! EPA works with bona fide prospective purchasers to help them understand liability protections and any site use restrictions in order to successfully develop Superfund sites during and after cleanup. This webinar will use the real world example of the Solitron Microwave Superfund site to provide an overview of liability protections and best practices to successfully redevelop Superfund sites across the nation. For more information and to register, see https://clu-in.org/live.

Bioremediation - Expanding the Toolbox - September 30, October 3, 11, 2019. This series will emphasize new approaches to elucidate mechanisms responsible for

bioremediation. The series will feature innovative molecular, biochemical, cellular, and/or engineering tools to advance our understanding of the structural and functional properties of microorganisms or plants involved in the bioremediation of hazardous substances. The first session "Bioremediation - Expanding the Toolbox: The Microbiome - on September 30 will serve as an introduction to the series and will touch on opportunities to build linkages with other microbiome fields of study, such as the human microbiome. For more information and to register, see https://clu-in.org/live.

US EPA Office of Research and Development's Office of Science Policy Mine and Mineral Processing Virtual Workshop Series - October 2, 9, 16, and 23, 2019. EPA's Office of Research and Development's Office of Science Policy and Center for Environmental Solutions & Emergency Response is sponsoring a 4-part virtual workshop series to address characterization, remediation, and response challenges at Superfund and legacy mining and mineral processing sites. Each virtual workshop will include a short lecture by various subject matter experts in their respective fields but will also allow ample time for the presenters to interact with the audience, including time for questions and answers as well as brainstorming and identifying concerns from stakeholders participating in each virtual workshop. If you have a mining reclamation or remediation site, this is the virtual workshop for you! For more information and to register, see https://clu-in.org/live.

US EPA Office of Research and Development Contaminated Sediments Virtual Workshop Series - October 21, 30, November 13, 20, 2019. The US EPA Office of Research and Development / Office of Science Policy (ORD/OSP) in cooperation with the Office of Land and Emergency Management (OLEM) is sponsoring a 4-part virtual workshop series to address current challenges at contaminated sediment sites. The aim of the virtual workshop is to provide interactive discussions between subject matter expert panelists and workshop participants. Consequently, each virtual session will feature brief topic introductions by panelists followed by facilitated panelist/participant discussions which will include opportunities for questions and answers, brainstorming, identification of concerns and research needs, and quick spot surveys. For more information and to register, see https://clu-in.org/live.

> New Documents and Web Resources

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:

- Performance Evaluation of USAID'S Environmental Remediation at Danang Airport
- Sandia National Laboratories, New Mexico: Environmental Restoration Operations, Consolidated Quarterly Report, April-June, 2018
- 2017 Groundwater Assessment Report, Idaho Pole Company Site, Bozeman, Montana
- Self-Sustaining Treatment for Active Remediation (STAR) Pre-Design Evaluation (PDE) Report, Quendall Terminals, Renton, Washington
- Passive Sampling for Contaminated Sediment Sites
- The Groundwater Spatiotemporal Data Analysis Tool (GWSDAT) for Groundwater Quality Analyses

- Tools for Estimating Contaminant Mass-in-Place, Mass Discharge, and Remediation Timeframes
- A Novel Reactive Electrochemical Membrane System for Treatment of Mixed Contaminants
- Synergistic Reductive Dechlorination of 1,1,1-Trichloroethane and Trichloroethene and Aerobic Biodegradation of 1,4-Dioxane
- Validation of Biotechnology for Quantifying the Abundance and Activity of Vinyl-Chloride Oxidizers in Contaminated Groundwater
- EPA Tools and Resources Webinar: Treating Contaminants of Emerging Concern

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 17 resources, events, projects and news items were added to EUGRIS in July 2019. 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

US EPA and RAIS Screening Level Calculator Training for Chemical and Radionuclide Risk Analysis, Oak Ridge National Laboratory, Oak Ridge, Tennessee, October 1-4, 2019. This training is primarily intended for fresh and seasoned environmental professionals working on risk assessment projects at the Federal or State level. The trainers are responsible for many EPA risk assessment tools for chemicals and radionuclides as well as the Risk Assessment Information System. The first day of training will include tours of the spallation neutron source facility and the high flux isotope reactor. The second and third days of the training are focused on chemical risk assessment and include tours of Summit supercomputer and the historic graphite reactor. The optional fourth day of the training is exclusively about radiation risk and dose assessment. For more information and to register, see https://rais.ornl.gov/home/fall2019.html.

2019 Design and Construction Issues at Hazardous Waste Sites (DCHWS) - West, Denver, CO, November 4-6, 2019. The Society of American Military Engineers Denver Metro Post is holding the third DCHWS-West Symposium to encourage dialogue and information sharing on design and construction issues relevant to hazardous waste sites in the western United States. The applications of engineering and science associated with cleaning up hazardous waste sites continue to evolve rapidly. The Symposium goal 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 https://www.same.org/Get-Connected/Find-a-Post/Denver/DCHWS-WEST.

Groundwater High-Resolution Site Characterization (HRSC), Boston, MA, November 13-14, 2019. This training course focuses on groundwater characterization and discusses (1) the impacts of subsurface heterogeneity on the investigation and cleanup of groundwater and related media, (2) the need for scale-appropriate measurements and adequate data density, and (3) the tools and strategies that are available to overcome the impacts of subsurface heterogeneity. After taking this course, participants will be armed with information that will allow them to improve their subsurface investigation approaches and develop more realistic and comprehensive conceptual site models (CSM). CSMs developed based on HRSC strategies and tools will decrease site uncertainty, improve the remedy selection process for groundwater

remedies, and better enable the evaluation, design, and implementation of targeted in situ and ex situ groundwater remedies. The Groundwater HRSC course is an advanced 2-day course. The recommended audience includes EPA, federal, state, tribal and private industry technical project managers, practitioners and other stakeholders involved in groundwater investigation and remediation. For more information and to register, see https://trainex.org/hrsc.

Best Practices for Site Characterization Throughout the Remediation Process, Lenexa, KS, December 3-5, 2019. This training course is based on best management practices (BMP) implemented by the 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.

2019 National Brownfields Training Conference, Los Angeles, CA, December 11-13, 2019. The National Brownfields Training Conference is the largest event in the nation focused on environmental revitalization and economic redevelopment. Held every two years, the National Brownfields Conference attracts nearly 3,000 stakeholders in brownfields redevelopment and cleanup to share knowledge about sustainable reuse and celebrate the EPA brownfields program's success. For more information and to register, see https://brownfields2019.org.

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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