U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, August 1, 2019

Welcome to TechDirect! Since the July 1 message, TechDirect gained 50 new subscribers for a total of 39,091. 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.

> EPA's Small Business Innovation Research (SBIR)

EPA Awards over $2 Million in Funding for 21 Small Businesses to Develop Innovative Environmental Technologies.
The US Environmental Protection Agency (EPA) announced $2.3 million in funding for 21 small businesses to develop technologies that will help protect human health and the environment by monitoring air quality, treating drinking water, cleaning up contaminated sites, and creating greener, less toxic materials. Multiple small businesses are receiving Phase I contracts from EPA's Small Business Innovation Research (SBIR) program, which awards contracts annually through a two-phase competition. Examples of recent SBIR Phase I recipients include:

- Electrochemical Pretreatment of PFAS-Contaminated Aqueous Effluents; Electrochemical Extraction and Remediation of PFAS in Soils, learn more at https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10972/report/0
- Rapid Field Trace Detection of Perfluoroalkyl Substance in Water, learn more at https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10958/report/0
- Disposable Test Strips for Ultra-Sensitive Quantification of Polyfluoroalkyl Substances in Ground Water, learn more at https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/10957/report/0

For more information on EPA's SBIR Phase I recipients, visit:
https://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/recipients.display/rfa_id/641/records_per_page/ALL

> Upcoming Live Internet Seminars

Performance Measures and Environmental Indicators - August 5, 2019, 1:00PM-3:00PM EDT (17:00-19:00 GMT). This two-hour training course will discuss the purpose of environmental indicators and different tools available to Remedial Project Managers (RPM) who make environmental indicator determinations at their Superfund sites as well as other federal agency and state representatives that work on these sites, particularly at federal facilities. By taking the course, participants will achieve the following objectives: understand the role of environmental indicators in the Superfund remedial program; learn how to identify Human Exposure Under Control status of a site; learn how to identify Groundwater Migration Under Control status of a site; apply your understanding of environmental indicators through interactive polling and discussion; identify interrelationships with other Superfund components such as five-year reviews, sitewide ready for anticipated reuse determinations, and risk determinations; and become familiar with EPA guidance, tools, and other reference materials on environmental indicators. The instructional methodology for this course includes lecture and interactive polling with opportunity for questions and discussion from participants. The target audience for this course is RPMs, federal agency representatives, and state representatives that work on federal facilities. For more information and to register, see https://clu-in.org/live.

ITRC Remediation Management of Complex Sites - August 15, 2019, 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.

ITRC Long-term Contaminant Management Using Institutional Controls - August 27, 2019, 1:00PM-3:15PM EDT (17:00-19:15 GMT). Institutional controls (ICs) are administrative or legal restrictions that provide protection from exposure to contaminants on a site. When ICs are jeopardized or fail, direct exposure to human health and the environment can occur. While a variety of guidance and research to date has focused on the implementation of ICs, ITRC's Long-term Contaminant Management Using Institutional Controls (IC-1, 2016) guidance and this associated training class focuses on post-implementation IC management, including monitoring, evaluation, stakeholder communications, enforcement, and termination. The ITRC guidance and training will assist those who are responsible for the management and stewardship of ICs. After attending the training, participants will be able to: describe best practices and evolving trends for IC management at individual sites and across state agency programs; use this guidance to improve IC reliability and prevent IC failures, improve existing, or develop new, IC Management programs, identify the pros and cons about differing IC management approaches; use the tools to establish an LTS plan for specific sites; and use the elements in the tools to understand the information that should populate an IC registry or data management system. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/live.

ITRC Characterization and Remediation of Fractured Rock - August 29, 2019, 1:00PM-3:15PM EDT (17:00-19:15 GMT). The basis for this training course is the ITRC guidance: Characterization and Remediation of Fractured Rock. The purpose of this guidance is to dispel the belief that fractured rock sites are too complex to characterize and remediate. The physical, chemical and contaminant transport concepts in fractured rock have similarities to unconsolidated porous media, yet there are important differences. By participating in this training class, you should learn to use ITRC's Fractured Rock Document to guide your decision making so you can: develop quality Conceptual Site Models (CSMs) for fractured rock sites, set realistic remedial objectives, select the best remedial options, monitor remedial progress and assess results, and value an interdisciplinary site team approach to bring collective expertise to improve decision making and to have confidence when going beyond containment and monitoring -- to actually remediating fractured rock sites. For more information and to register, see https://www.itrcweb.org or 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. The US EPA Office of Research and Development's Office of Science Policy is sponsoring a 4-part virtual workshop series to address current challenges at 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 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 such as Ned Black of US EPA Region 9, Dr. Todd Bridges of the U.S. Army Engineer Research and Development Center, Dr. Rainer Lohmann of the University of Rhode Island's Graduate School of Oceanography Kevin R. Sowers, Ph.D of the Department of Marine Biotechnology, University of Maryland Baltimore County, Dr. Chris Eckley of US EPA Region 10 and Upal Ghosh, Ph.D., of the Department of Chemical, Biochemical, and Environmental Engineering at the University of Maryland Baltimore County along with many others 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.

Highlight from the CLU-IN Seminar Archives. Each edition of TechDirect highlights a previously recorded internet seminar from our archives that may be of interest to our readers. We welcome your feedback on this addition to Techdirect.

ITRC Remedy Selection for Contaminated Sediments, Archive of Jan 9, 2018 Seminar (2 Hours, 15 Minutes):, Sponsored by Interstate Technology and Regulatory Council, Archive of Jan 9, 2018 Seminar (2 Hours, 15 Minutes). This ITRC training course supported participants with applying the technical and regulatory guidance as a tool to overcome the remedial challenges posed by contaminated sediment sites. Participants learn how to: identify site-specific characteristics and data needed for site decision making, evaluate potential technologies based on site information, and select the most favorable contaminant management technology for their site. To replay the archived webinar, visit https://clu-in.org/conf/itrc/ContSedRem_010918/

> New Documents and Web Resources

Green Remediation Best Management Practices: Sites with Leaking Underground Storage Tank Systems (EPA 542-F-19-001). The U.S. EPA estimates that approximately 65,450 releases of petroleum or hazardous substances from federally regulated underground storage tanks (USTs) had not yet reached the "cleanup completed" milestone as of September 2018. The Association of State and Territorial Solid Waste Management Officials (ASTSWMO) estimates that in 2017, alone, state cleanup funds collectively spent approximately $1.113 billion in cleaning up UST releases. Use of green remediation best management practices (BMPs) can help minimize the environmental footprint of cleanup activities at UST-contaminated sites and improve overall outcomes of the corrective actions. In accordance with the EPA Principles for Greener Cleanups, BMPs outlined in the updated "Green Remediation Best Management Practices: Sites with Leaking Underground Storage Tanks" fact sheet are intended to complement federal requirements for corrective actions at UST-contaminated sites and may enhance state-administered UST program requirements (August 2019, 4 pages). View or download at https://clu-in.org/greenremediation/.

Pulverized Paper as a Soil Carbon Source for Degraded Training Lands (RC-201416). This ESTCP project will demonstrate and validate the cost-effective utilization of pulverized classified paper waste as an organic soil amendment for rehabilitation of severely disturbed training lands. Objectives include demonstrating improved vegetative cover and soil and plant health using pulverized paper as a soil amendment, validating the economic benefits of this utilization versus current practices for waste and training land management, assessing potential contaminants and identifying potential restrictions, and developing user guidelines for transfer of this technology to end users. View or download at https://www.serdp-estcp.org/Program-Areas/Resource-Conservation-and-Resiliency/Natural-Resources/Watershed-Processes-and-Management/RC-201416/RC-201416 .

EPA Office of Research and Development Journal Article: Preliminary Investigation of Polymer-Based In Situ Passive Samplers for Mercury and Methylmercury. Passive samplers are a relatively new tool for measuring pollutants in the aquatic environment. For years, passive samplers have been available for industrial pollutants like polychlorinated biphenyls (PCBs) and dioxins as well as pesticides like DDT. Passive samplers let us know if these chemicals might cause toxicity to aquatic life or accumulate in seafood we may eat. This study investigated developing a passive sampler for the toxic metal mercury. The results were promising and suggest a passive sampler for mercury can be developed but it will require more research to optimize the tool. View at https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=345868&Lab=NHEERL&NoArchive=1&SIType=PR&fed_org_id=111

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:

- 2014 Treatability Study Data Evaluation: Barker-Hughesville Mining District Superfund Site
- Passive Treatment of Acid-Mine Drainage
- Ecosystem Goods and Services Case Studies and Models Support Community

Decision Making Using the EnviroAtlas and Eco-Health Relationship Browser
- How the Community Value of Ecosystem Goods and Services Empowers Communities to Impact the Outcomes of Remediation Restoration and Revitalization Projects
- Explanation of Significant Differences: Onondaga Lake Bottom Subsite of the Onondaga Lake Superfund Site, Modified Protective Caps
- Explanation of Significant Differences: Site 8 - Fire Department Training Area #2, Pease Air Force Base NPL Site
- A High Resolution Passive Flux Meter Approach Based on Colorimetric Responses
- Development of an Integrated Field Test/Modeling Protocol for Efficient In Situ Bioremediation Design and Performance Uncertainty Assessment
- Guidance for Using Compound Specific Isotope Analysis (CSIA) to Document the Biodegradation and Natural Attenuation of RDX

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 9 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

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/classdetails.cfm?courseid=1515&classid=7897.

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.
