



TechDirect, December 1, 2023

Welcome to TechDirect! Since the November 1 message, TechDirect gained 75 new subscribers for a total of 43,810. 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.

> Research Funding Opportunity

The Department of Defense's Strategic Environmental Research and Development Program (SERDP) is seeking environmental research and development proposals for funding beginning in Fiscal Year (FY) 2025. Projects will be selected through a competitive process. Details are available on the SERDP website. The Core Solicitation provides funding opportunities for basic and applied research and advanced technology development. Core projects vary in cost and duration consistent with the scope of the work proposed. The Statements of Need referenced by this solicitation request proposals related to the SERDP program areas of Environmental Restoration, Resource Conservation and Resilience, and Weapons Systems and Platforms. All Core pre-proposals are due January 9, 2024 by 2:00 p.m. ET. For more information, please visit

<https://serdp-estcp.org/workingwithus/solicitation?id=078a8263-a3e4-4cb5-a195-d91cc074c065>

The SERDP Exploratory Development (SEED) Solicitation provides funding opportunities for work that will investigate innovative environmental approaches that entail high technical risk or require supporting data to provide proof of concept. Funding is limited to not more than \$250,000 and projects are approximately one year in duration. This year, SERDP is requesting SEED proposals for the Weapons Systems and Platforms program area. SEED proposals are due March 14, 2024 by 2:00 p.m. ET. For more information, please visit

<https://serdp-estcp.org/workingwithus/solicitation?id=b2d13885-2562-407b-964e-12f1e6925aa3>

> Upcoming Live Internet Seminars

ITRC Optimizing Injection Strategies and In situ Remediation Performance - December 5, 2023, 1:00PM-3:15PM EST (18:00-20:15 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 under-performing 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>.

ITRC Sediment Cap Chemical Isolation Training - January 18, 2024, 1:00PM-3:00PM EST (18:00-20:00 GMT). In 2023, ITRC published the Sediment Cap Chemical Isolation Guidance to supplement the 2014 Contaminated Sediments Remediation Guidance with the goal of improving consistency in sediment cap performance outcomes. Sediment capping is a commonly selected remediation approach and numerous designs have been completed. Previous cap designs have been evaluated in multiple ways, and these varying approaches have led to some differences in selection of chemical design criteria, construction tolerance specifications, and monitoring/maintenance objectives for sites with similar characteristics and contaminants, leading to different expectations for long-term performance and reliability. The Sediment Cap Chemical Isolation Training will cover several key elements of the recommended framework. For more information and to register, see <https://www.itrcweb.org> or <https://clu-in.org/live>.

ITRC: Pump & Treat Optimization - January 30, 2024, 1:00PM-3:15PM EST (18:00-20:15 GMT). This training aims to summarize existing information and best practices while also developing a systemic and adaptive optimization framework specifically for P&T well-network design and management. P&T systems have been one of the most commonly used methods for hydraulic containment and treatment of contaminated groundwater at sites with large groundwater plumes. This method cleans up groundwater contaminated with dissolved chemicals by pumping groundwater from wells to an above-ground treatment system that removes the contaminants. The primary audience for this training is environmental project decision-makers, which may include federal, state, tribal, and various local agency employees; contractors to these agencies; and potentially liable parties and their engineers and consultants as well as involved stakeholders. Generally, those involved in designing, building and operating, and optimizing pump & treat systems would benefit. For more information and to register, see <https://www.itrcweb.org> or <https://www.clu-in.org/live>.

Correcting Some Misconceptions about EPA's Superfund Approach for Radiation Risk Assessment - January 31, 2024, 1:30PM-3:30PM EST (18:30-20:30 GMT). The U.S. Environmental Protection Agency (EPA) Office of Superfund Remediation and Technology Innovation (OSRTI) has primary responsibility for implementing the remedial long-term (non-emergency) portion of a key U.S. law regulating cleanup: the Comprehensive Environmental Response, Compensation and Liability Act, CERCLA, nicknamed "Superfund." The Superfund program generally addresses radioactive contamination in a consistent manner as it addresses chemical contamination, except where there are technical differences between radionuclides and other chemicals. For example, cleanup levels for radioactive contamination at sites are generally expressed in terms of risk levels (e.g., 10⁻⁴), rather than millirem or millisieverts, as a unit of

measure. Although EPA and other US agencies have issued millirem-based regulations under other statutory authorities, under CERCLA EPA promulgated a risk range of 10⁻⁴ to 10⁻⁶ as a standard of protectiveness for all carcinogens including radionuclides. CERCLA guidance recommends the use of slope factors when estimating cancer risk from radioactive contaminants, rather than converting from millirem. Current slope factors are based on risk coefficients in Federal Guidance Report 13. The Superfund remedial program uses 10⁻⁶ as a point of departure and establishes Preliminary Remediation Goals (PRGs) at 1 x 10⁻⁶. PRGs not based on other environmental standards known as Applicable or Relevant and Appropriate Requirements (ARARs) are risk-based concentrations, derived from standardized equations combining exposure information assumptions with EPA toxicity data. The policy rationale and technical underpinnings for this risk management approach is often misunderstood by radiation professionals. This presentation will help clarify some of these misunderstandings by focusing on misstatements about the Superfund approach that the author has encountered from radiation professionals. Often, they are citing the wrong EPA documents or portions of documents incorrectly, or not reading sections of the correct Superfund guidance. For more information and to register, see <https://www.itrcweb.org> or <https://clu-in.org/live>.

> New Documents and Web Resources

Conducting Climate Vulnerability Assessments at Superfund Sites (EPA 542-R-23-002). The Engineering Forum, as one of three technical forums of the U.S. Environmental Protection Agency (EPA) Technical Support Project, developed this issue paper to document lessons learned in conducting climate vulnerability assessments (CVAs) at sites on the National Priorities List. The goals of a CVA are to assess future changes in climate conditions at a site so they may be factored into site decision making; determine whether adaptation measures are necessary to improve remedy resilience; and ensure remedy protectiveness is maintained under future changes in climate. The issue paper explains the three components of a CVA (exposure, sensitivity, and adaptive capacity) and details six steps in the CVA process implemented by EPA for Superfund sites. A CVA may be performed by federal or state authorities or potentially responsible parties for any type of Superfund site at various stages of remediation. The CVA process described in the issue paper also may be adapted for application at contaminated sites in other cleanup programs. To view or download, please visit <https://www.clu-in.org/s.focus/c/pub/i/3006/>.

Green Remediation Best Management Practices: Waste Cover Systems and Integrated Site Reuse Planning (EPA 542-F-23-002). Remediation at thousands of sites across the United States involves addressing hazardous waste from former industrial landfills, aged municipal landfills, illegal dumps or waste piles. When properly designed and maintained, a final cover system could provide opportunities to reuse a site for purposes such as renewable energy production and greenspace preservation. Integrated site cleanup and reuse planning can provide economies of scale and avoid later retrofitting of remedial components if site conditions or administrative goals change over time. The updated EPA fact sheet on this topic describes best management practices to reduce the environmental footprint of constructing, maintaining and monitoring a waste cover system and highlights sites where such integrated planning is anticipated to enhance long-term site sustainability and resilience. To view or download, please visit <https://www.clu-in.org/s.focus/c/pub/i/3007/>

Climate Adaptation Profile: General Motors (Central Foundry Division). EPA recently released a climate adaptation profile describing measures taken at the

218-acre General Motors site that borders the St. Lawrence River and Raquette River near Massena, New York. Remedial action at this National Priorities List site has involved excavating, dredging, solidifying and consolidating contaminated soil and sediment for onsite capping or offsite disposal. Current work focuses on maintaining the cover systems, extracting contaminated groundwater for ex situ treatment, and addressing contaminated soil and sediment at adjacent tribal land of the Mohawk Territory of Akwesasne. The site is vulnerable to riverine and upland flooding associated with extreme precipitation events or rapid snowmelt. Additionally, the site's shoreline/subaqueous sediment cap is vulnerable to more intense wave action and more frequent ice jams. Climate adaptation measures have included designing the site's landfill cap to shed more than three times the surface water capacity required by New York regulations; integrating a six-inch layer of stone armor in the subaqueous portion of the sediment cap; and constructing an engineered wetland that retains excess stormwater shed from the landfill cap. To protect the groundwater extraction system from saturated soil and freeze conditions, the system's mechanical and electrical controls were installed in waterproof vaults positioned at depths below the site's frost line. To view or download, please visit

<https://www.epa.gov/superfund/climate-adaptation-profile-general-motors-central-foundry-division>.

Research Brief 347: High-Temperature Biochar for Arsenic Remediation. Adding biochar produced at a high temperature may be an effective way to immobilize arsenic in sediment, according to researchers partially funded by the NIEHS Superfund Research Program (SRP). The study, led by Owen Duckworth, Ph.D., of the University of North Carolina at Chapel Hill SRP Center, in partnership with researchers from the Luiz de Queiroz College of Agriculture, University of São Paulo, Brazil, also provided further insight into the conditions that influenced the effectiveness of biochar for soil remediation. For more information and to read the brief, please visit

https://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=347

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://www.clu-in.org/products/tins/>. The following resources were included in recent issues:

- Horizontal Directional Drilling and Horizontal Wells to Enhance Remediation at Complex Sites
- Industrial SCWO for the Treatment of PFAS/AFFF Within a Water Matrix
- Superfund Environmental Justice Best Practices

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than four resources, events, projects and news items were added to EUGRIS in November 2023. 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. The following resource was posted on EUGRIS:

Case Studies and Analysis of Sustainable Remediation Techniques and Technologies (CL:AIRE 2023). CL:AIRE's Concawe bulletins describe the deployment of sustainable remediation techniques and technologies on sites in Europe. Each bulletin includes a description of the project context and conceptual site model along with a sustainability assessment. These bulletins form Appendix 1 of the Concawe report - Case Studies and Analysis of Sustainable Remediation Techniques and Technologies. The report aims to fill in a recognised gap in the provision of detailed case studies documenting the practical implementation of sustainable remediation, and facilitate further refinement of guidance. It contains a cross comparison analysis of the ten case studies, seeking to help practitioners compare these case studies to their own projects. View or download from <https://www.claire.co.uk/information-centre/cl-aire-publications?start=4>.

> Conferences and Symposia

Save the Date! ITRC Annual Meeting, April 8-11, 2024, Long Beach, CA.

Environmental professionals from the state, tribal and federal government, private sector, and stakeholder groups come to ITRC's Annual Meeting to collaborate on critical environmental topics and guidance. For more information, please visit <https://itrcweb.org/itrcwebsite/events/2024-annual-meeting>

Design and Construction Issues at Hazardous Waste Sites (East), April 10-12, 2024, Philadelphia, PA.

The Society of American Military Engineers organizes this annual conference to share information about applications of engineering and science associated with cleaning up hazardous waste sites. The conference panels focus on case studies, advances in processes such as remedy optimization, and emerging issues such as PFAS contamination. For more information, please visit <https://sites.google.com/samephiladelphia/post.org/dchws/home>

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 (202) 566-0832 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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