U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, June 1, 2021

Welcome to TechDirect! Since the May 1 message, TechDirect gained 54 new subscribers for a total of 39,898. 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.

> Grant Awards and Technology Challenges

EPA Announces Communities to Receive More $66 Million in Brownfields Assessment and Cleanup Funding.
The U.S. Environmental Protection Agency (EPA) announced the selection of 151 communities to receive 154 grant awards totaling $66.5 million in Brownfields funding through its Multipurpose, Assessment, and Cleanup (MAC) Grants. Approximately 50 percent of selected recipients will be receiving EPA Brownfields Grant funding for the first time and more than 85 percent are located in or serving small communities. The grant announcement includes:

- $8.8 million for 11 Multipurpose Grants, which will provide funding to conduct a range of eligible assessment and cleanup activities at one or more brownfield sites in a target area.
- $42.2 million for 107 Assessment Grants, which will provide funding for brownfield inventories, planning, environmental assessments, and community outreach.
- $15.5 million for 36 Cleanup Grants, which will provide funding to carry out cleanup activities at brownfield sites owned by the recipient.

For more information, please visit
https://www.epa.gov/brownfields/applicants-selected-fy-2021-brownfields-multipurpose-assessment-and-cleanup-grants

Water Toxicity Sensor Challenge.
Monitoring the increasing number of pollutants in source waters is an ongoing concern for water treatment systems and water resource managers. Pesticides, heavy metals, personal care products, natural toxins such as those from cyanobacteria, and a host of other organic and inorganic chemical pollutants and their products all can increase toxicity in water.Current methods for detecting and identifying many of these

contaminants are expensive, time-consuming, and require the use of specialized laboratories. To help meet the need for better ways to monitor toxicity in water, EPA and partners are launching the Water Toxicity Sensor Challenge. The challenge calls on innovators to develop a sensor that can identify whether there are chemical pollutants and natural toxins in various types of water much faster and less expensively than current lab methods for detecting individual, specific chemicals. Certain chemicals can activate various toxicity pathways inside living cells. This causes a disruption to normal biological processes, like breathing or digestion, which can lead to harmful health effects such as diseases like cancer. This Challenge calls for a water sensor that can detect the activation of those toxic pathways in the presence of various harmful chemicals and natural toxins. The Water Toxicity Sensor Challenge is a collaborative effort of the U.S. Environmental Protection Agency, the United States Geological Survey (USGS), the National Oceanic and Atmospheric Administration (NOAA), the U.S. Army Medical Research and Development Command (USAMRDC), the Greater Cincinnati Water Works, and the Water Research Foundation. The Challenge ends July 26, 2021. For more information, please visit https://www.epa.gov/innovation/water-toxicity-sensor-challenge.

> Upcoming Live Internet Seminars

ITRC Vapor Intrusion Mitigation (VIM-1) - June 1 and 15, 2021, 1:00PM-3:00PM EDT (17:00-19:00 GMT). When certain contaminants or hazardous substances are released into the soil or groundwater, they may volatilize into soil gas. Vapor intrusion (VI) occurs when these vapors migrate up into overlying buildings and contaminate indoor air. ITRC has previously released guidance documents focused on VI, including the "Vapor Intrusion Pathway: A Practical Guidance" (VI-1, 2007) and "Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management" (PVI, 2014). However, ITRC has received multiple requests for additional details and training on mitigation strategies for addressing this exposure pathway. The ITRC Vapor Intrusion Mitigation Team (VIMT) created ten fact sheets, 16 technology information sheets, and 4 checklists with the goal of assisting regulators during review of vapor intrusion mitigation systems, and helping contractors understand the essential elements of planning, design, implementation, and operation, maintenance and monitoring (OM&M) of mitigation systems. The Vapor Intrusion Mitigation training is a series of eight (8) modules, presented over two sessions. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

SERDP ESTCP PFAS Analytical Challenges and Opportunities - June 3, 2021, 12:00PM EDT (18:00 GMT). Join SERDP and ESTCP for a webinar featuring DoD-funded research efforts to address challenges associated with per- and polyfluoroalkyl substances (PFAS) analysis in environmental media. Janice Willey (U.S. Navy, NAVSEA) will provide an overview of PFAS analysis, as well as significant challenges and ongoing efforts to address these challenges. Dr. Jinxia Liu (McGill University) will present progress towards improving PFAS analytical methods, particularly for PFAS originated from aqueous film-forming foams. Dr. Jennifer Field (Oregon State University) will discuss research efforts to determine the factors that impact PFAS stratification in water columns (wells and surface water) that may result in artifacts in measured PFAS concentrations. For more information and to register, please visit https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series/06-03-2021.

Risk e-Learning Webinar Series: Session II: Geospatial Platforms for Analysis and Visualization Across Environmental Data - June 3, 2021, 2:00PM-4:00PM EDT (18:00-20:00 GMT). The NIEHS Superfund Research Program (SRP) is hosting a Risk

e-Learning webinar series focused on SRP-funded data science projects that are enhancing the integration, interoperability, and reuse of data. With these supplements, the SRP encourages data sharing among its grantees to accelerate scientific discoveries, stimulate new collaborations, and increase scientific transparency and rigor. In the second session, SRP-funded researchers will describe efforts to combine and analyze datasets using geospatial platforms. These platforms are being used to visualize patterns of exposures and those factors that may affect these patterns, within a geographical area. This session will also feature a speaker supported by the National Science Foundation, who will discuss HydroShare, an online system for sharing hydrologic data and models. For more information and to register, please visit https://clu-in.org/live.

Risk e-Learning Webinar Series: Session III: Integrating Omics Data Across Model Organisms and Populations - June 18, 2021, 1:00PM-3:00PM EDT (17:00-19:00 GMT). The NIEHS Superfund Research Program (SRP) is hosting a Risk e-Learning webinar series focused on SRP-funded data science projects that are enhancing the integration, interoperability, and reuse of data. With these supplements, the SRP encourages data sharing among its grantees to accelerate scientific discoveries, stimulate new collaborations, and increase scientific transparency and rigor. The third and final session will feature SRP-funded researchers collaborating to combine omics (e.g., genomics, proteomics) data within and across model organisms as well as studies in human populations. We will also hear from The Global Alliance for Genomics and Health about their work to incorporate semantic data models for sharing of genomic data to align with environmental health research. For more information and to register, please visit https://clu-in.org/live.

NAVFAC 2021 Innovative Remediation Webinars - June 21-July 22, 2021, 2:00PM-4:00PM (18:00-20:00 GMT). This special virtual offering of the Remediation Innovative Technology Seminar (RITS) will be presented as a series of webinars. Each topic will be offered twice during June and July 2021. All webinars will include a question and answer session. Each webinar topic has been specially selected for Department of the Navy Remedial Project Managers and other Environmental Restoration Program personnel on the following six topics: The Importance of Abiotic Transformation in Transitioning from Active to Passive Remedies; Contaminant Tracing Tools to Quantify Natural Attenuation in Groundwater/Surface Water Transition Zone; Useful Guidance for Avoiding Munitions and Explosives of Concern Issues During Sediment Dredging; Five-Year Review Process - Lessons Learned; Best Practices for Conducting PFAS Investigations; and Applying Incremental Sampling Methodology at Navy Sites. For more information and to register, please visit https://battelle.webex.com/battelle/onstage/g.php?PRID=0d2438ad844670816517991dbc7a4ab6.

ITRC Sustainable Resilient Remediation (SRR) - June 22, 2021, 1:00PM-3:00PM EDT (17:00-19:00 GMT). Interstate Technology Regulatory Council Extreme weather events and wildfires are increasing and impacting hazardous waste sites. The primary goal of cleanups, which is protecting human health and the environment, is undermined. Confronted with these risks, environmental professionals should assess, and de-sign remedies that are sustainable and resilient. Sustainable resilient remediation (SRR) is an optimized solution to cleaning up and reusing a hazardous waste site that limits negative environmental impacts, maximizes social and economic benefits, and creates resilience against increasing threats. The objective of the ITRC Sustainable Resilient Remediation (SRR-1) is to provide resources and tools for regulators, stakeholders, consultants, and responsible parties to help integrate sustainable and resilient practices into remediation projects. This guidance updates the Inter-state Technology and Regulatory Council's (ITRC) Technical and Regulatory Guidance: Green and Sustainable Remediation: A Practical Framework (ITRC 2011a) and includes a strong resilience component to address the increasing threat of extreme weather events and wildfires. Recommendations for careful and continuous

consideration of the social and economic costs and benefits of a cleanup project are included. For more information and to register, see https://www.itrcweb.org or https://clu-in.org/live.

> New Documents and Web Resources

Research Brief 317: New Technique Sheds Light on PFAS in Coastal Watersheds. Water supplies for millions of US individuals exceed maximum contaminant levels for per- and polyfluoroalkyl substances (PFAS). Contemporary and legacy use of aqueous film forming foams (AFFF) is a major contamination source. However, diverse PFAS sources are present within watersheds, making it difficult to isolate their predominant origins. Here we examine PFAS source signatures among six adjacent coastal watersheds on Cape Cod, MA, U.S.A. using multivariate clustering techniques. A distinct signature of AFFF contamination enriched in precursors with six perfluorinated carbons (C6) was identified in watersheds with an AFFF source, while others were enriched in C4 precursors. Principal component analysis of PFAS composition in impacted watersheds showed a decline in precursor composition relative to AFFF stocks and a corresponding increase in terminal perfluoroalkyl sulfonates with < C6 but not those with ? C6. Prior work shows that in AFFF stocks, all extractable organofluorine (EOF) can be explained by targeted PFAS and precursors inferred using Bayesian inference on the total oxidizable precursor assay. Using the same techniques for the first time in impacted watersheds, it was found that only 24%-63% of the EOF can be explained by targeted PFAS and oxidizable precursors. The authors' work thus indicates the presence of large non-AFFF organofluorine sources in these coastal watersheds. For more information, please visit https://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=317.

Urban Redevelopment of Contaminated Sites: A Review of Scientific Evidence and Practical Knowledge on Environmental and Health Issues (World Heath Organization 2021). Across the WHO European Region, the urban population is growing steadily and demand for land is rapidly increasing. Revitalizing and/or remediating industrial sites and contaminated land present an opportunity for sustainable urban development and reduce pressure on undisturbed land resources. Redevelopment of contaminated sites entails various challenges, however, and may cause continued environmental and health consequences if contamination risks are not properly managed or remediated. This report provides the results of an expert consultation on redeveloping contaminated sites for new urban functions, aiming to review the health and environmental impacts of conversion and redevelopment and to identify sound practices to support effective redevelopment while considering health and well-being. The consultation was structured as a discussion of the evidence on environmental and health impacts of remediation, a review of European redevelopment case studies and a reflection on the applicability of impact assessment tools during remediation and redevelopment processes. Summarizing the conclusions, this report identifies good practices and important elements that should be considered for remediation and redevelopment projects. For more information and to download, please visit https://www.euro.who.int/en/health-topics/environment-and-health/urban-health/publications/2021/urban-redevelopment-of-contaminated-sites-a-review-of-scientific-evidence-and-practical-knowledge-on-environmental-and-health-issues-2021.

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:

- Analysis of Fate of PFAS During Incineration PFAS Emissions: Measurement Methods Development and Emissions Characterization Study at National Response Corporation Alaska, LLC AFFF Contaminated Soil Thermal Treatment Facility
- Continuous Monitoring for Vapor Intrusion Fact Sheet
- Advantages and Limitations of the Incremental Sampling Methodology (ISM) for Navy Projects
- PFAS Science Webinars for EPA Region 1 and State & Tribal Partners
- Portable Mercury Detector Testing and Evaluation Report
- Field Assessment of Abiotic Attenuation Rates Using Chemical Reactivity Probes and Cryogenic Core Collection
- Innovative Approaches to Monitor and Survey At-Risk Species on DOD Lands
- Performance Assessment of Past Bioremediation Approaches for Chlorinated Solvent Source Zones

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than eight resources, events, projects and news items were added to EUGRIS in May 2021. 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

New Dates! 2021 National Brownfields Training Conference - Oklahoma City, OK, December 8-11, 2021. 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 over 2,000 stakeholders in brownfields redevelopment and cleanup to share knowledge about sustainable reuse and celebrate the EPA brownfields program's success. Whether you're a newcomer or a seasoned professional, Brownfields 2021 offers something for you! For more information, please visit https://brownfields2021.org

The National Environmental Monitoring Conference - Bellvue, WA and Virtual, August 2-12, 2021. The National Environmental Monitoring Conference (NEMC) is the largest conference in North America focused on environmental measurements. In 2021, NEMC will be held as a hybrid event, with both an in-person and virtual event planned for the week of August 2, 2021, and a virtual-only event for the week of August 9, 2021. The in-person event will be held at the Hyatt Regency in Bellevue, Washington. The theme of this year's conference is Hitting Reset. The Conference will include a technical program featuring oral and poster presentations, a special half-day general session with a keynote speaker focused on the conference theme and updates from EPA program offices, special keynote presentations on the conference theme, and luncheon presentations, an exhibit program showcasing the latest innovations in environmental monitoring, and an Innovative New Technology Showcase. For more information and to register, please visit https://nemc.us/.

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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