



TechDirect, February 1, 2016

Welcome to TechDirect! Since the January 1 message, TechDirect gained 227 new subscribers for a total of 35,656. 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

ITRC Issues and Options in Human Health Risk Assessment - A Resource When Alternatives to Default Parameters and Scenarios are Proposed - February 2, 2016, 1:00PM-3:15PM EST (18:00-20:15 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 <http://www.itrcweb.org> or <http://clu-in.org/live>.

ITRC Environmental Molecular Diagnostics: New Tools for Better Decisions - February 4, 2016, 1:00PM-3:15PM EST (18:00-20:15 GMT). Environmental molecular diagnostics (EMDs) are a group of advanced and emerging analytical techniques used to analyze biological and chemical characteristics of environmental samples. Although EMDs have been used over the past 25 years in various scientific fields, particularly medical research and diagnostic fields, their application to environmental remediation management is relatively new and rapidly developing. The ITRC Environmental Molecular Diagnostics Fact Sheets (EMD-1, 2011), ITRC Environmental Molecular Diagnostics Technical and Regulatory Guidance (EMD-2, 2013) and this companion Internet-based training will foster the appropriate uses of EMDs and help regulators, consultants, site owners, and other stakeholders to better understand a site and to make decisions based on the results of EMD analyses. At the conclusion of the

training, learners should be able to determine when and how to use the ITRC Environmental Molecular Diagnostics Technical and Regulatory Guidance (EMD-2, 2013); define when EMDs can cost-effectively augment traditional remediation data sets; and describe the utility of various types of EMDs during remediation activities. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

Military Munitions Support Services - Munitions Medley - February 11, 2016, 1:00PM-5:00PM EST (18:00-22:00 GMT). This will be a Military Munitions Support Services seminar with subject matter experts discussing advanced classification, the Buried Explosion Module (BEM), landfill removal action, and beach replenishment. For more information and to register, see <http://clu-in.org/live>.

ITRC Groundwater Statistics for Environmental Project Managers - February 18, 2016, 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>.

ITRC Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management - February 23, 2016, 1:00PM-3:15PM EST (18:00-20:15 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 provides 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 <http://www.itrcweb.org> or <http://clu-in.org/live>.

ITRC Remedy Selection for Contaminated Sediments - February 25, 2016, 1:00PM-3:15PM EST (18:00-20:15 GMT). ITRC developed the technical and regulatory guidance, Remedy Selection for Contaminated Sediments (CS-2, 2014), to assist decision-makers in identifying which contaminated sediment management technology is most favorable based on an evaluation of site specific physical, sediment, contaminant, and land and waterway use characteristics. The document provides a remedial selection framework to help identify favorable technologies, and identifies additional factors (feasibility, cost, stakeholder concerns, and others) that need to be considered as part of the remedy selection process. This ITRC training course supports 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. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

SERDP and ESTCP Webinar Munitions Response - February 25, 2016. SERDP and ESTCP are offering webinars to promote the transfer of innovative, cost-effective and sustainable solutions. The webinar series targets end users including practitioners, the regulatory community and researchers to provide cutting-edge and practical information from sponsored research and technology demonstrations. This webinar will feature two speakers highlighting Department of Defense (DoD) efforts on the classification of underwater munitions. Dr. Aubrey Espa and Dr. Tim Marston from the University of Washington will discuss the interdisciplinary nature of detecting, classifying and remediating munitions found at underwater sites with a focus on the acquisition of raw acoustic sonar data, current models that simulate it, and the processing tools that are used to reduce the raw data to data products. In addition, the speakers will talk about using these data products to train and test classification algorithms, how to estimate the performance of these algorithms, and recent efforts to use model results to optimize sonar performance. For more information and to register, see <https://serdp-estcp.org/Tools-and-Training/Webinar-Series>.

Identifying the Potential for Methylation of Mercury at Mining Sites - March 29, 2016, 1:00PM-3:00PM EDT (17:00-19:00 GMT). This Mining Series webinar presents two case studies that highlight the treatment potential for mercury methylation at mining sites. Methyl mercury (MeHg) is a toxic and bioavailable form of mercury. The first case study will document results of a treatability study conducted at the Formosa Mine Superfund site to assess the influence of sulfate-reducing bacteria on the production of MeHg during the treatment of mining-influenced water. The results are being used to inform the design, application, and assessment of sulfate-reducing biochemical reactors. The second looks at the impact of water level fluctuation on sediment in the Cottage Grove Reservoir, located downstream from the former Black Butte mercury mine of the Black Butte Superfund site. Results suggest that exposure of sediments to air while water levels are lowered may replenish the supply of sulfate (and/or other electron acceptors) needed to stimulate microbial production of MeHg mercury when the reservoir level is raised. For more information and to register, see <http://clu-in.org/live>.

> New Documents and Web Resources

Performance Assessment for Pump-and-Treat Closure or Transition. Performance assessment during Pump-and-Treat (P&T) remedy implementation may be needed because of diminishing returns, the complex nature of the site and contamination, or other factors. A new document has been published describing a structured approach for assessing P&T performance to support a decision to optimize, transition away from, or close a P&T remedy. The approach includes revisiting the conceptual site model to consider the current nature of the source and plume and to describe the site in terms of specific decision elements. These decision elements are applied in a decision logic framework to facilitate selection of the outcome that is best supported by the performance assessment. Case studies are used in the document to augment descriptions of decision elements and to illustrate each type of outcome identified in the performance assessment approach. The document also points to resources (tools and relevant guidance) to facilitate conducting the P&T assessment. The document was prepared by the Pacific Northwest National Laboratory and U.S. Army Corps of Engineers Environmental and Munitions Center of Expertise with review and input from industry, U.S. Department of Energy, U.S. Environmental Protection Agency, and U.S. Navy representatives (September 2015, 118 pages). View or download at <http://bioprocess.pnnl.gov/Pump-and-Treat.htm>.

Archived SERDP & ESTCP Webinar on Per- and Polyfluoroalkyl Substances (PFASs): Analytical and Characterization Frontiers. This January 28, 2016 webinar archive includes presentations by Dr. Stephen TerMaath (Air Force Civil Engineer Center), Dr. Jennifer Field (Oregon State University), and Dr. Christopher Higgins (Colorado School of Mines). It targets Department of Defense and Department of Energy practitioners, the regulatory community, and environmental researchers with the goal of providing cutting edge and practical information. View archive and download slides at <https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series/01-28-2016>.

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:

- 2015 Top Markets Report -- Environmental Technologies -- A Market Assessment Tool for U.S. Exporters
- Cost-Effective, Ultra-Sensitive Groundwater Monitoring for Site Remediation and Management: ESTCP Cost and Performance Report
- Determination of the Biologically Relevant Sampling Depth for Terrestrial and Aquatic Ecological Risk Assessments
- The Fishrand Spatially-Explicit Bioaccumulation Model
- Improvement, Verification, and Refinement of Spatially Explicit Exposure Models in Risk Assessment: Spatially Explicit Exposure Model (SEEM) Demonstration
- Evaluating Transport and Attenuation of Inorganic Contaminants in the Vadose Zone for Aqueous Waste Disposal Sites
- Improving Understanding of the Fate and Transport of Munitions Constituents to Enhance Sustainability of Operational Ranges
- Permitting of Landfill Bioreactor Operations: Ten Years after the RD&D Rule
- Development and Validation of a Quantitative Framework and Management Expectation Tool for the Selection of Bioremediation Approaches at Chlorinated Ethene Sites
- Passive PE Sampling in Support of In Situ Remediation of Contaminated Sediments

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 12 resources, events, projects and

news items were added to EUGRIS in January 2016. 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

The Emerging Contaminants Summit, Westminster, Colorado, March 1-2, 2016. Brought to you by the producers of the RemTEC Summit, the Emerging Contaminants Summit is a brand new conference dedicated to the latest developments in the detection, fate and transport, risk assessment, treatment and regulation of emerging contaminants. The summit draws leaders and key stakeholders from academia, government, regulatory community as well as site owners, private consulting agencies and various other environmental professionals to discuss the mitigation of emerging contaminants across all environmental media including surface water, groundwater, drinking water, wastewater, recycled water and soils. This year, USEPA staff will present or chair sessions on a variety of topics including Steve Dymont (Analytical, Toxicity, Regulatory and Legal Frontiers), Hilary Thornton (Characterization And Mitigation of Perfluoroalkyl and Polyfluoroalkyl Substances) and Rick Stevens (Trace Organics in Biosolids: A Regulatory Perspective). For more information and to register, see <http://www.contaminantssummit.com/>.

Intersol 2016 - International Conference-Exhibition on Soils, Sediments and Water, Lille, France, March 15-17, 2016. Intersol 2016 themes cover polluted sites and soils and health risks, pollution diagnoses, and research on toxicological and eco-toxicological effects. For more information and to register, see <http://www.intersol.fr/>.

Groundwater High-Resolution Site Characterization (HRSC), Denver, CO, March 22-23, 2016. 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>.

LNAPLs: Science, Management, and Technology - ITRC 2-day Classroom Training, Atlanta (area), GA, April 5-6, 2016. Led by internationally recognized experts, this 2-day ITRC classroom training will enable you to develop and apply an LNAPL Conceptual Site Model (LCSM), understand and assess LNAPL subsurface behavior, develop and justify LNAPL remedial objectives including maximum extent practicable considerations, select appropriate LNAPL remedial technologies and measure progress, and use ITRC's science-based LNAPL guidance to efficiently move sites to closure. Interactive learning with classroom exercises and Q&A sessions will reinforce these course learning objectives. For local, state, and federal government; students; community stakeholders; and tribal representatives, ITRC has a limited

number of scholarships (waiver of registration fee only) available. For more information and to register, see <http://www.itrcweb.org/training>.

9th Symposium on Design and Construction Issues at Hazardous Waste Sites, Philadelphia, PA, April 20-22, 2016. The applications of engineering and science associated with cleaning up hazardous waste sites continue to evolve rapidly. The goal of this symposium, co-hosted by the Society of American Military Engineers (SAME) Philadelphia Post and the U.S. EPA, 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 <http://secure.sameposts.org/franchises/philadelphia/events/634>.

Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management - ITRC 2-day Classroom Training, Denver, CO, May 9-10, 2016. This 2-day ITRC classroom training is based on the ITRC Technical and Regulatory Guidance Web-Based Document, Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management (PVI-1, 2014) and led by internationally recognized experts. The class will enable you to develop on-the-job skills to screen-out petroleum sites based on the scientifically-supported ITRC strategy and checklist; focus the limited resources investigating those PVI sites that truly represent an unacceptable risk; communicate ITRC PVI strategy and justify science-based decisions to management, clients, and the public; understand the essential principles of biodegradation and the fundamentals of vapor movement through the vadose zone; and appreciate the important role of modeling in the investigation of petroleum sites. Interactive learning with classroom exercises and Q&A sessions will reinforce these course learning objectives. You will also have the opportunity to network with other environmental professionals. For local, state, and federal government; students; community stakeholders; and tribal representatives, ITRC has a limited number of scholarships (waiver of registration fee only) available. For more information and to register, see <http://www.itrcweb.org/training>.

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 Jeff Heimerman at (703) 603-7191 or heimerman.jeff@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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