



TechDirect, October 1, 2015

Welcome to TechDirect! Since the September 1 message, TechDirect gained 147 new subscribers for a total of 35,220. 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 Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management - October 6, 2015, 1:00PM-3:15PM EDT (17:00-19:15 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 Use and Measurement of Mass Flux and Mass Discharge - October 7, 2015, 1:00PM-3:15PM EDT (17:00-19:15 GMT). The ITRC technology overview, Use and Measurement of Mass Flux and Mass Discharge (MASSFLUX-1, 2010), and associated Internet-based training provide a description of the underlying concepts, potential applications, description of methods for measuring and calculating, and case studies of the uses of mass flux and mass discharge. This Technology Overview, and associated Internet-based training are intended to foster the appropriate understanding and application of mass flux and mass discharge estimates, and provide examples of use and analysis. The document and training assumes the participant has a general understanding of hydrogeology, the movement of chemicals in porous media, remediation technologies, and the overall remedial process. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

ITRC Remedy Selection for Contaminated Sediments - October 8, 2015, 1:00PM-3:15PM EDT (17:00-19:15 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>.

Equitable Development: The Role of Brownfields Renewal, Community Land Trusts and Employee-Owned Businesses in Neighborhood Stability, October 14, 2015, 2:00PM-3:00PM EDT (18:00-19:00 GMT). The foundation for creating strong, economically resilient and liveable communities is increasingly built upon a spectrum of place-based activities that develop improved tools and strategies. This workshop is designed to give participants practical tools and share insider views about pioneering community building models. The webinar topic is community driven equitable development strategies focusing upon two models: (1) Employee-owned company(s) that creates jobs and career pathways for local residents; and (2) Community land trust that provides permanently affordable housing programs for local residents. This webinar is the second training event in this equitable development technical assistance series. The first training was the Equitable Development Workshop September 1, 2015 in Chicago at EPA's Brownfields 2015 National Training Conference. For more information and to register, see <http://clu-in.org/live>.

ITRC Integrated DNAPL Site Characterization - October 15, 2015, 1:00PM-3:30PM EDT (17:00-19:30 GMT). The Integrated DNAPL Site Characterization Team has synthesized the knowledge about dense nonaqueous phase liquid (DNAPL) site characterization and remediation acquired over the past several decades, and has integrated that information into a new document, Integrated DNAPL Site Characterization and Tools Selection (ISC-1, 2015). This guidance is a resource to inform regulators, responsible parties, other problem holders, consultants, community stakeholders, and other interested parties of the critical concepts related to characterization approaches and tools for collecting subsurface data at DNAPL sites. After this associated training, participants will be able to use the guidance to develop and support an integrated approach to DNAPL site characterization, including: identify what site conditions must be considered when developing an informative DNAPL conceptual site model (CSM); define an objectives-based DNAPL characterization

strategy; understand what tools and resources are available to improve the identification, collection, and evaluation of appropriate site characterization data; and navigate the DNAPL characterization tools table and select appropriate technologies to fill site-specific data gaps. 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 - October 20, 2015, 1:00PM-3:15PM EDT (17:00-19:15 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>.

Integrating Data from Multidisciplinary Research, Session II - Cross Domain Discovery and Integration - October 27, 2015, 2:00PM-4:00PM EDT (18:00-20:00 GMT). Join us for the next session in the SRP Risk eLearning webinar series, which explores challenges and opportunities for integrating datasets to solve complex environmental health problems. In the second session, speakers will discuss goals and successes of National Science Foundation (NSF) grants and initiatives related to large, diverse, complex, longitudinal, and/or distributed datasets. Chaitan Baru, Ph.D., on assignment as Senior Advisor for Data Science in the Computer and Information Science & Engineering Directorate at the NSF, will discuss NSF initiatives in Big Data. Ilya Zaslavsky, Ph.D., Director of the Spatial Information Systems Laboratory at University of California San Diego, will highlight NSF-funded projects that enable data discovery and facilitate sharing of research and expertise. For more information and to register, see <http://clu-in.org/live>.

Save the date for upcoming SERDP/ESTCP Webinar on Assessment and Treatment of Contaminated Sediments planned for October 29, 2015. The following speakers will present in the webinar: Dr. Todd Bridges (U.S. Army Engineer Research and Development Center) and Dr. Kevin Sowers (University of Maryland). For more information on this and other webinars in the series, please visit <https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series>.

Nanotechnology for Site Remediation - November 2, 2015, 11:00AM-1:00PM EST (16:00-18:00 GMT). This webinar is a follow-up to the Inaugural Conference on the Applications of Nanotechnology for Safe and Sustainable Environmental Remediations [Nano-4-Rem-aNssERs] which was held in Hammond, Louisiana in the Summer of 2013. In this 2 hour webinar, the expert panel will give an update about the current state of engineered nanoparticles (ENPs) workers' exposure scenarios in environmental remediation; an update of the U.S. EPA Superfund sites experience with the use of ENPs; an update on nano-zero-valent iron-based remediation experience in Europe; and an overview of ways to harness "informatics 4 impact" to meet your mission goals. For more information and to register, see <http://clu-in.org/live>.

Implementing Greener Cleanups through ASTM's Standard Guide (E2893-13) -

November 17, 2015, 12:00PM-2:00PM EST (17:00-19:00 GMT). The U.S. EPA and other agencies encourage use of the ASTM International *Standard Guide for Greener Cleanups* (E2893-13), which offers a step-wise approach for reducing the environmental footprint of site cleanup activities. This two-hour webinar sponsored by the U.S. EPA will provide participants with an overview of the Guide, show how the Guide can inform project decisions, and describe experiences in using the Guide at sites across the U.S. under state or federal cleanup programs. The webinar also will provide a virtual exercise in prioritizing greener best management practices (BMPs) based on their anticipated environmental footprint reductions. For more information and to register, see <http://clu-in.org/live>.

> New Documents and Web Resources

Greener Cleanups Bulletin: Use of the ASTM Standard Guide for Greener Cleanups at the North Ridge Estates Superfund Site (EPA 542-F-15-011). The U.S. Environmental Protection Agency (EPA) has launched a "greener cleanup bulletin" series to provide periodic news about environmental footprint reductions at specific sites undergoing cleanup. As the first in the series, Use of the ASTM Standard Guide for Greener Cleanups at the North Ridge Estates Superfund Site summarizes EPA's application of the ASTM Standard Guide for Greener Cleanups (E2893-13) to plan remediation at operable unit 1 of the North Ridge Estates site near Klamath Falls, Oregon. Use of the standard guide helped project staff screen, prioritize and select BMPs that were incorporated into the design and construction contracts for the remedy, which involves extensive excavation and soil cap construction (September 2015, 2 pages). View or download at https://clu-in.org/greenremediation/docs/GC_Bulletin_2015-09_NRE.pdf.

Use of Monitored Natural Attenuation for Inorganic Contaminants in Ground Water at Superfund Sites (OSWER Directive 9283.1-36). This new monitored natural attenuation (MNA) policy document for inorganic contaminants expands on and is designed to be a companion to the 1999 MNA guidance. Together, these two policy documents provide guidance on the consideration of MNA for a broad range of contaminants at Superfund sites. This 2015 MNA guidance, consistent with the 1999 MNA guidance, indicates that multiple "lines of evidence" should be obtained to evaluate whether MNA should be considered as part of the site's selected response action. As a related matter, the 1999 MNA guidance also recommends use of a tiered analysis approach for considering MNA, which typically involves a detailed analysis of site characteristics that control and sustain attenuation. The 2015 MNA guidance builds on this tiered approach and recommends a phased analytical approach tailored specifically for inorganic contaminants (August 2015, 83 pages). View or download at <https://clu-in.org/9283.1-36>.

Stabilization and Solidification of Contaminated Soil and Waste: A Manual of Practice. This document has been designed as a practical reference for regulators, site owners, engineering firms, and others involved in selecting, designing, bidding, and providing oversight for the remediation of hazardous waste sites using S/S. This book provides guidance on applicable contaminants, site characteristics, project planning, equipment capabilities, production rates, performance specifications and the quality assurance of S/S treated materials. Included are references to numerous case studies and an extensive reference list of completed projects that successfully employed S/S (September 2015, 603 pages). View or download at <https://clu-in.org/download/techfocus/stabilization/S-S-Manual-of-Practice.pdf>.

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

- Cost-Effective, Ultra-Sensitive Groundwater Monitoring for Site Remediation and Management
- Understanding Dioxin-Like Compounds in Indoor Dust
- GLO-Roots: An Imaging Platform Enabling Multidimensional Characterization of Soil-Grown Root Systems
- Trichloroethene (TCE) in Indoor and Outdoor Air
- OW-5/55R Area In Situ Geochemical Stabilization Remediation Pilot Test
- Novel Sensor for the In Situ Measurement of Uranium Fluxes
- ISRAP: Interactive Sediment Remedy Assessment Portal
- Geophysical Classification for Munitions Response

Superfund Research Program (SRP) Research Briefs. To get monthly updates on research advances from the SRP you can subscribe to their Research Brief mailing list at <https://list.nih.gov/cgi-bin/wa.exe?SUBED1=SRP-BRIEF&A=1>.

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 15 resources, events, projects and news items were added to EUGRIS in September. 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:

INTERSOL 2016 - International Conference-Exhibition on Soils, Sediments and Water - Call for papers. Intersol 2016 themes cover polluted sites and soils and health risks, pollution diagnoses, and research on toxicological and eco-toxicological effects. Submissions are due November 6, 2015. For more information visit <http://www.intersol.fr/accueil.php> .

> Conferences and Symposia

13th HCH & Pesticides Forum, Zaragoza, Spain, November 3-6, 2015. This three day forum will focus on the lessons learned from the legacy of the lindane production in Spain. For more information and to register, <http://www.hchforum.com/>.

LNAPLs: Science, Management, and Technology - ITRC 2-day Classroom Training, Austin, TX, November 18-19, 2015. 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>.

Call for Abstracts! 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. Abstracts are due by October 16, 2015. For more information and to submit an abstract, see

<http://secure.sameposts.org/franchises/philadelphia/events/634>.

Call for Abstracts! 2016 SustRem Conference, Montreal, Canada, April 26-28, 2016. The 2016 SustRem Conference aims to stimulate international exchange by providing a venue for public, private and academic sectors to share experiences and perspectives on how contaminated sites can be remediated with a smaller overall footprint and more positive outcomes, and how their reuse can contribute to a more sustainable land development. As sponsors, the Sustainable Remediation Forum (SURF), Common Forum, Contaminated Land: Applications in Real Environments (CL:AIRE) and Network for Industrially Contaminated Land in Europe (NICOLE) are soliciting abstracts meeting the conference themes of sustainability indicators and metrics; stakeholder and/or aboriginal engagement; resource conservation; sustainable brownfield redevelopment; corporate sustainability reporting and benchmarking; education and research in the field of sustainable remediation; and international regulatory frameworks. Abstracts are due by October 14, 2015. For more information and to submit an abstract, see

<http://www.rpic-ibic.ca/en/events/federal-contaminated-sites-fcs-national-workshop/2016-fcs-national-workshop/sustrem-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 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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