



TechDirect, September 1, 2015

Welcome to TechDirect! Since the August 1 message, TechDirect gained 229 new subscribers for a total of 35,176. 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 Groundwater Statistics for Environmental Project Managers - September 3, 2015, 1:00PM-3:15PM EDT (17:00-19:15 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>.

SERDP & ESTCP Webinar Series, Munitions Response: Underwater Geophysical Sensors - September 17, 2015, 12:00PM EST (16:00PM GMT). Please join the Strategic Environmental Research and Development Program (SERDP) and Environmental Security Technology Certification Program (ESTCP) for two presentations on Department of Defense (DoD) research efforts to develop underwater geophysical sensors. First, Dr. Mark Prouty of Geometrics will discuss the development

of a real-time underwater magnetometer array to detect, characterize, and remediate military munitions found at underwater sites. Second, Dr. Thomas Bell of Leidos will talk about adapting electromagnetic sensor technologies to underwater applications for unexploded ordnance detection and classification. For more information and to register, see <https://www.serdp-estcp.org/Tools-and-Training/Webinar-Series/09-17-2015>.

ITRC LNAPL Training Parts 1, 2, and 3 - September 22, 24, 29. Light non-aqueous phase liquids (LNAPLs) are organic liquids such as gasoline, diesel, and other petroleum hydrocarbon products that are immiscible with water and less dense than water. LNAPLs are important because they are present in the subsurface at thousands of remediation sites across the country, and are frequently the focus of assessment and remediation efforts. Part 1 of this training course explains how LNAPLs behave in the subsurface and examines what controls their behavior. Part 1 also explains what LNAPL data can tell you about the LNAPL and site conditions. Relevant and practical examples are used to illustrate key concepts. Part 2 addresses LNAPL characterization and site conceptual model development as well as LNAPL recovery evaluation and remedial considerations. Specifically, Part 2 discusses key LNAPL and site data, when and why those data may be important, and how to get those data. Part 2 also discusses how to evaluate LNAPL recoverability. Part 3 uses the LNAPL conceptual site model (LCSM) approach to identify the LNAPL concerns or risks and set proper LNAPL remedial objectives and technology-specific remediation goals and performance metrics. Part 3 also provides an overview of the LNAPL remedial technology selection framework. For more information and to register, see <http://www.itrcweb.org> or <https://clu-in.org/live>.

> New Documents and Web Resources

Geophysical Classification for Munitions Response. Geophysical classification is a new technology in which buried metal items (such as scrap metal or unexploded ordnance) are detected on a site. With the use of new instruments and advanced geophysics, the buried items are classified to determine whether they are munitions that should be removed or metal clutter, debris, or geology that can be left in the ground. This web-based guidance document explains the process of geophysical classification, describes its benefits and limitations, and most importantly discusses the information and data needed by regulators to monitor and evaluate the use of the technology. This document also emphasizes using a systematic planning process to develop data acquisition and decision strategies at the outset of a munitions response effort, as well as quality considerations throughout the project. Stakeholder issues that are unique to munitions response are also discussed (August 2015, 108 pages). View or download at <http://itrcweb.org/gcmr-2/>. For more information on the corresponding Internet-based training course that will be offered beginning in November 2015, see <http://www.itrcweb.org/Training>.

Greener Cleanup Technical Summary Form: Pharmacia and Upjohn Company LLC, North Haven, Connecticut. The U.S. EPA encourages use of the ASTM *Standard Guide for Greener Cleanups* (E2893-13) to reduce the environmental footprint of site cleanup activities. At the Pharmacia and Upjohn Company Site in New Haven, Connecticut, the standard guide was used to identify and evaluate greener cleanup best management practices (BMPs). Remediation technologies implemented at this 78-acre site include groundwater extraction and treatment, a perimeter groundwater hydraulic barrier wall, excavation and onsite consolidation of impacted soils, sediment dredging, soil cover systems and in situ thermal remediation. Ultimately, more than 80 greener cleanup BMPs were incorporated into the design and implementation of the cleanup (July 2015, 22 pages). To view the project profile, including the ASTM greener cleanup technical summary, visit <https://clu-in.org/greenremediation/profiles/pharmaciaupjohn>.

Superfund Research Program Research Brief 248: Cellulose Nanomaterials in Environmental Cleanup Technologies. Nanomaterials made of cellulose - a natural polymer used mainly to produce paper - hold great promise in environmental remediation applications and water filtration membranes, according to Duke University Superfund Research Program (Duke SRP) researchers. In a compilation of research findings, Duke SRP researchers led by Mark Wiesner, Ph.D., outline the physical and chemical properties, production costs, and current use of cellulose nanomaterials. For more information, see http://tools.niehs.nih.gov/srp/researchbriefs/view.cfm?Brief_ID=248. 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>.

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:

- Questions and Answers [from] EPA's Remedial Acquisition Framework (RAF) Webinar
- Treatment of a PHC Source Zone Using Land Application of Sulfate
- An Integrated Framework of Methods, Technologies, Tools and Policies for Improvement of Brownfield Regeneration in Europe: Project Final Report [Timbre Project]
- B&L Woodwaste Site, Pierce County, Washington: Phase 2 In Situ Pilot Study Monitoring Report [for reductive precipitation PRBs]
- Study to Identify BATEA for the Management and Control of Effluent Quality from Mines
- Role of Nitrate in the Remobilization and Attenuation of Selenium in Coal Mine Waste
- In Situ Immobilization of Selenium in Sediment
- Networking with Technical, Scientific and End-User Community
- Taking Nanotechnological Remediation Processes from Lab Scale to End User Applications for the Restoration of a Clean Environment [NanoRem Project]
- Promoting Nanoremediation Using Nanoscale Zerovalent Iron (NZVI): Risk-Benefit and Markets Appraisal, Initial Exploitation Strategy and Consultation [NanoRem Project]

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 7 resources, events, projects and news items were added to EUGRIS in August 2015. 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:

Call for Papers on Global Trends in Sustainable and Green Remediation.

Sustainable remediation covers a wider range of sustainability impacts and benefits in the remediation of contaminated sites; and also, for a number of the groups involved, extends to ideas of sustainable regeneration and land use (e.g. UK) and sustainable soil management (e.g. NL). A related concept is "green remediation" being advanced by the US Environmental Protection Agency (US EPA), which focuses on minimizing or mitigating the environmental impacts of remediation activities in mature site clean-up programs. Sustainable remediation has become an area of intense development across the world, and has important contributions to make to emerging cross-disciplinary sustainable development practices in land-use planning (for example in the context of "brownfields development"), urban design and management ("urban renewal") and transport ("transit oriented development"). This special issue provides an overview of

the state of the art for sustainable and green remediation, along with the perspectives and concepts that underpin sustainable/green remediation and a view of its future direction of travel. Contributions are sought on case studies or examples of sustainable or green remediation in practice; tools, techniques and applications for the assessment, management and verification of sustainability on contaminated sites; and application of low impact remedial techniques such as phyto-remediation, use of charcoals etc (so-called "gentle remediation"). To submit a paper please see:

<http://ees.elsevier.com/ijema/default.asp> .

> Conferences and Symposia

LNAPLs: Science, Management, and Technology - ITRC 2-day Classroom Training, Seattle (area), WA, September 15-16, 2015; 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>.

RE3 Conference & Exposition, Philadelphia, PA, September 15-17, 2015. RE3 is a conference put on for the industry by the industry, and it continues to evolve through partnerships with regulatory agencies and the media. This event focuses on site remediation and redevelopment, with an aim to appeal to both technical and non-technical audiences by way of presentations, short courses, poster sessions and exhibits. It also offers opportunities for geologists and engineers to gain professional development hours and continuing education credits. The agenda includes a September 17 panel session, "ASTM's Standard Guide for Greener Cleanups," organized by the U.S. Environmental Protection Agency and ASTM partners to explain the goals of greener cleanups and provide an overview of the *Standard Guide for Greener Cleanups* (ASTM E2893-13). For more information and to register, see <http://www.enviroblend.com/re3-about>.

12th International Phytotechnologies Conference, Manhattan, KS, September 27-30, 2015. This conference, hosted by Kansas State University, will provide scientists, engineers, consultants, policy regulators and other interested individuals the opportunity to explore and discuss how recent developments in phytotechnologies address current and emerging environmental challenges. Phytotechnologies refer to plant-based technologies to clean water, soil, air, and provide ecosystem services including energy from biomass. For more information and to register, see <http://conferences.k-state.edu/phytotech2015/>.

2015 NGWA Conference on Groundwater in Fractured Rock, Burlington, VT, September 28-29, 2015. USGS researchers and other presenters will share a synopsis on the use of innovative techniques, cutting-edge research, and lessons learned from practical experience regarding characterizing and remediating groundwater in fractured rock environments during this National Ground Water Association (NGWA) conference. For more information and to register, see <http://www.ngwa.org/Events-Education/conferences/Pages/5017sep15.aspx>.

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/>.

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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