



TechDirect, December 1, 2011

Welcome to TechDirect! Since the November 1 message, TechDirect gained 217 new subscribers for a total of 35,968. If you feel the service is valuable, please share TechDirect with your colleagues. Anyone interested in subscribing may do so on CLU-IN at <http://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 ground water.

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.

> Special Announcement

ITRC Issues Request for Proposals (RFP) for 2013 Projects. The Interstate Technology & Regulatory Council (ITRC) requests proposals for 2013 ITRC projects. ITRC would like to focus proposals on the following topical areas: site characterization, sampling, and monitoring; soil, groundwater, and sediments contamination; military munitions; long term stewardship and land use controls; and watershed management. Proposals on other topics will be considered, but preference will be given to those that address one of these areas. Proposals are due electronically to Anna Willett, ITRC Director (awillett@ecos.org) by 5 pm Eastern time on Friday, February 10, 2012. For more information and a project proposal form, see <http://www.itrcweb.org/planning.asp>.

> Upcoming Live Internet Seminars

ITRC Biofuels: Release Prevention, Environmental Behavior, and Remediation - December 6, 2011, 2:00PM-4:15PM EST (19:00-21:15 GMT). This training, which is based on the ITRC's Biofuels: Release Prevention, Environmental Behavior, and Remediation (Biofuels-1, 2011), focuses on the differences between biofuels and conventional fuels specific to release scenarios, environmental impacts, characterization, and remediation. The trainers will define the scope of the potential environmental challenges by introducing biofuel fundamentals, regulatory status, and future usage projections. Participants will learn how and when to use the ITRC biofuels guidance document for their projects. They will understand the differences in biofuel and petroleum behavior; become familiar with the biofuel supply chain, potential release scenarios and release prevention; be able to develop an appropriate

conceptual model for the investigation and remediation of biofuels; and select appropriate investigation and remediation strategies. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live> .

ITRC LNAPL Training Parts 1, 2, and 3 - December 8, 13, 15, 2011. 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 <http://clu-in.org/live> .

> New Documents and Web Resources

Updated CLU-IN In Situ Oxidation Focus Area. In situ chemical oxidation, also referred to as ISCO, is an aggressive remediation technology that has been applied to a wide range of volatile and semivolatile hazardous contaminants, including DNAPL source zones and the dissolved-phase chemicals emanating from the source zones.

The 2010 Superfund Remedy Report (Thirteenth Edition) reports that ISCO was selected as a remedy at 36 Superfund sites during the period 2005 to 2008. Chemical oxidation typically involves reduction/oxidation (redox) reactions that chemically convert hazardous compounds to nonhazardous or less toxic compounds that are more stable, less mobile, or inert. Redox reactions involve the transfer of electrons from one compound to another. Specifically, one reactant is oxidized (loses electrons) and one is reduced (gains electrons). The oxidizing agents most commonly used for treatment of hazardous contaminants in soil and groundwater are hydrogen peroxide, catalyzed hydrogen peroxide, potassium permanganate, sodium permanganate, sodium persulfate, and ozone. Each oxidant has advantages and limitations, and while applicable to soil contamination and some source zone contamination, they have been applied primarily toward remediating groundwater. View and use at <http://clu-in.org/isco> .

Nanotechnology: Applications for Environmental Remediation CLUIN Technology Focus Area Fact Sheet. This fact sheet describes a new remediation technology focus area: Nanotechnology: Applications for Environmental Remediation. The goal of this focus area is to help site owners and other parties involved in remedial activities understand the current and potential applications of nanotechnology at their sites. Information on this website is organized into the following categories: Overview, Guidance, Application, Training, and Additional Resources. View or download at <http://clu-in.org/download/remed/nano-fact-sheet-2011.pdf>

Electronic Data Deliverables: The Importance of Receiving Your Site and Project Data Electronically (EPA 542-F-11-010). The purpose of this fact sheet is to

encourage even wider use of Electronic Data Deliverables (EDDs) by explaining their importance and how to ensure that your site data are submitted electronically. The EDD Fact Sheet Appendix provides supplemental information on what to request in EDDs, how electronic data are shared, examples of data to submit electronically, and links to EDD guidance (April 2011, 2 pages). View or download at <http://clu-in.org/techpubs.htm> .

New Triad Profiles Available on the Triad Resource Center Website. New Triad profiles have recently been added to the User Experiences section of the website. These profiles are concise summaries of successful Triad projects and are backed by a database that can be searched using various criteria such as contaminant, remedial phase, and technology category. Triad is an innovative approach to data collection and decision-making for hazardous waste site characterization and remediation, and the U.S. EPA's Triad Resource Center Website (<http://www.triadcentral.org/>) is a central location for information about the Triad Approach. The website also offers a wide range of information about the use of the Triad including access to the Triad Community of Practice (CoP), Triad technical resources and guidance, and user experiences on the use of Triad at federal and private sites. For additional information or to add a Triad profile, contact Cheryl Johnson at Johnson.Cheryl@epa.gov. View and use at <http://www.triadcentral.org/user/profile/> .

Final Report: Applied Materials Building 1: Long-Term Monitoring Strategy (EPA 542-R-11-006). A five-year review documenting the progress of Applied Materials Building 1 (AM1) toward remedial goals was completed in 2010. The site has largely achieved remedial goals for groundwater; however, specific National Priorities List (NPL) close-out prospects for sites with rare or intermittent exceedances of groundwater cleanup goals over a limited spatial extent are not clear. Additionally, the presence of groundwater plumes on adjacent properties may complicate the close-out decision. This memorandum reviews historical site data and how they might support the development of a long-term, close-out strategy for the AM1 site. Statistical analyses were performed using modules within the Monitoring and Remediation Optimization System software (MAROS) and ProUCL software (October 2011, 45 pages). View or download at <http://clu-in.org/techpubs.htm> .

Integrated DNAPL Site Strategy: Technical/Regulatory Guidance. To help managers develop successful integrated strategies for chlorinated solvent sites, this document describes key concepts and recent developments in each of five areas: (1) a conceptual site model based on reliable characterization methods and an understanding of the subsurface conditions that control contaminant transport, reactivity, and distribution; (2) remedial objectives and performance metrics that are clear, concise, and measurable; (3) treatment technologies applied in sequence or in parallel designed to optimize performance and take advantage of potential synergistic effects; (4) monitoring strategies based on interim and final cleanup objectives, the selected treatment technology and approach, and remedial performance goals; and (5) re-evaluating the strategy repeatedly and modifying the approach when objectives are not being met or when alternative methods offer similar or better outcomes at lower cost (November 2011, 209 pages). View or download at http://www.itrcweb.org/documents/IntegratedDNAPLStrategy_IDSSDoc/IDSS-1.pdf .

Technology News and Trends (EPA 542-N-11-005). This issue highlights cleanup approaches that rely on waste materials or treatment processes as a means to generate heat or other forms of energy for onsite or offsite use. Energy-generating sources can include extracted groundwater already warmed by subsurface temperatures, landfill gas with a high methane content, and soil containing byproducts from coal mining or processing. Recovery of these potential energy sources can help beneficially reuse materials or media that are traditionally treated or discarded as waste and may defray cleanup costs. (November 2011, 6 pages). View or download at <http://clu-in.org/techpubs.htm> .

EPA, DOE Partner to Develop Renewable Energy on Potentially Contaminated Sites. The U.S. EPA and the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) are evaluating the feasibility of developing renewable energy production on Superfund, brownfields, and former landfill or mining sites. As part of the RE-Powering America's Land Initiative, EPA is investing approximately \$1 million for projects across the United States aiming to revitalize abandoned sites while protecting people's health, the environment and providing economic benefits to local communities, including job creation. Projects will analyze the potential development of wind, solar, biomass, or geothermal production at 26 sites. More information and site fact sheets are available at <http://www.epa.gov/renewableenergyland/studies.htm> .

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 the latest issue:

- Opportunities for Petroleum Brownfields
- Sustainability and the U.S. EPA
- Review of Available Technologies for the Removal of Selenium from Water

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 16 resources, events, projects and news items were added to EUGRIS in November 2011. 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:

The SuRF-UK Indicator Set for Sustainable Remediation Assessment (2011). This short document summarises the SuRF-UK indicator categories following their further development and refinement through Phase 2 in worked case studies and discussion groups. A description of 15 categories of indicators spread over environmental, social and economic factors that can be used for sustainability assessment in support of remediation decision-making is presented. View or download from http://www.claire.co.uk/index.php?option=com_phocadownload&view=file&id=262:initiatives&Itemid=78 .

> Conferences and Symposia

The Resource Conservation and Recovery Act (RCRA): Cradle to Grave, December 2, 2011. What does it really mean to manage waste from "cradle to grave"? Join Pete Raack to learn how this important, cross-cutting regulatory program manages the toxic refuse of a great consumer society. For more information and to register for this webinar, see <http://clu-in.org/neti11202> .

Introduction to Phytotechnologies and Water Balance (Evapotranspiration) Covers, San Francisco, CA, December 14 and 15, 2011. U.S. EPA Region 9 has teamed up with the Office of Research and Development to present two days of training on Phytotechnologies and Water Balance Covers, with each taking a day. This 2-day workshop, offered at the Region 9 offices in San Francisco, is intended to teach regulators, owners and operators, consultants, and engineers the basic principles for growing plant systems for environmental remediation, enhancement, and waste containment. Topics will include alternative cover design, soil selection, construction, monitoring, including discussions of regulatory issues. Regional case studies will be

emphasized. The days' offerings are mutually exclusive, so you can attend one or both days depending on your interests and needs. For more information and to register, see <http://www.phytosociety.org/events> .

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. Currently there are 17 conferences and courses featured. We invite sponsors to input information on their events at <http://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 <http://clu-in.org/techdirect> at any time night or day.

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