U.S. ENVIRONMENTAL PROTECTION AGENCY

TechDirect, March 1, 2012

Welcome to TechDirect! Since the February 1 message, TechDirect gained 286 new subscribers for a total of 31,445. 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.

> Technology News and Trends: Let Us Know If You Would Like to Go Paperless!

In the interest of minimizing the resources required to print and distribute the Technology News and Trends newsletter (http://www.clu-in.org/products/newsltrs/tnandt/), EPA is going paperless and will be distributing the newsletter electronically. If you are a subscriber, please let us know if you would like to continue your subscription via semi-monthly email notifications. Please send an email message with your mailing address and email address to TNTeditor@emsus.com. Put "Paperless" in the subject line so we can make the switch.

> Upcoming Live Internet Seminars

US and EU Perspectives on Green and Sustainable Remediation, Part 4 - March 6, 2012, 10:00AM-12:00PM EDT (15:00-17:00 GMT). This seminar is a continuation in the series on international green and sustainable remediation (GSR) efforts (additional information on prior internet seminars can be found at http://cluin.org/consoil/). This two-hour seminar will: (1) present a US case study on greening Superfund cleanups at the Apache Powder, Arizona, site; (2) present a case study on how GSR efforts are being implemented in Central Europe; (3) discuss Austria's new tool for performing a cost-effectiveness analysis which integrates the environmental and socio-economic dimension of sustainability; (4) provide an update on developments that support EPA greener cleanups (e.g., EPA's environmental footprint methodology for estimating or quantifying a remediation site's footprint [www.clu-in.org/greenremediation/methodology/index.cfm], and the ASTM International effort to develop a voluntary consensus-based standard for greener cleanups [www.clu-in.org/greenremediation/subtab_b5.cfm]); (5) present updates on international GSR efforts; and (6) provide information on 2012 green and sustainable remediation internet seminars and conferences. An open forum will be held throughout the seminar to respond to participant questions. For more information and to register, see http://clu-in.org/live .

ITRC Use of Risk Assessment in Management of Contaminated Sites - March 6, 2012, 2:00PM-4:15PM EST (19:00-21:15 GMT). This training course identifies how various risk-based approaches and criteria are applied throughout the processes of screening, characterization, and management of contaminated sites. The training course and associated overview document, Use of Risk Assessment in Management of Contaminated Sites (RISK-2, 2008), are intended for risk assessors and project managers involved with the characterization, remediation, and/or re-use of sites. The training and overview document provide a valuable tool for federal and state regulatory agencies to demonstrate how site data collection, risk assessment, and risk management may be better integrated. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/live .

ITRC Project Risk Management for Site Remediation - March 8, 2012, 11:00AM-1:15PM EST (16:00-18:15 GMT). Remediation Risk Management (RRM) is a course of action through which all risks related to the remediation processes (site investigations, remedy selection, execution, and completion) are holistically addressed in order to maximize the certainty in the cleanup process to protect human health and the environment. Remediation decisions to achieve such a goal should be made based on threshold criteria on human health and ecological risks, while considering all the other potential project risks. Through this training course and associated ITRC Technical and Regulatory Guidance Document: Project Risk Management for Site Remediation (RRM-1, 2011), the ITRC RRM team presents tools and processes that can help the site remediation practitioner anticipate, plan for, and mitigate many of the most common obstacles to a successful site remediation project. Examples of project risks include remediation technology feasibility risks; remedy selection risks; remedy construction, operation and monitoring risks; remedy performance and operations risks; environmental impacts of systems during their operation; worker safety risk, human health and ecological impacts due to remedy operation; as well as costs and schedules risks including funding and contracting issues. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/live .

Understanding the FY12 Environmental Workforce Development and Job Training Grant Proposal Guidelines - March 8 and 16, 2012. This seminar will provide an overview of the Fiscal Year 2012 Environmental Workforce Development and Job Training Grant application guidelines for prospective applicants. The seminar will include a description of the history of the program, eligible use of funds, threshold and ranking evaluation criteria, as well as helpful hints for submitting a strong proposal. Time will also be allotted for questions and answers. The deadline for submission of proposals to EPA under this competitive opportunity is April 12, 2012. For more information and to register, see http://clu-in.org/live .

ITRC Biofuels: Release Prevention, Environmental Behavior, and Remediation - March 13, 2012, 2:00PM-4:15PM EDT (18:00-20:15 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 .

Superfund Redevelopment Initiative Webinar Series: Aligning Remedies with Reuse - March 21, 2012, 2:00PM-4:00PM EDT (18:00-20:00 GMT). The Superfund Redevelopment Initiative (SRI) hosts a series of quarterly webinars on redevelopment of Superfund sites across the country. These webinars share the history of redevelopment, discuss the different types of reuse that are possible and share how particular Superfund sites have become reuse success stories. In addition to the webinar sessions, SRI also highlights a new site and its redevelopment

story every other month. For more information and to register, see http://clu-in.org/live .

ITRC Mine Waste Treatment Technology Selection - March 22, 2012, 11:00AM-1:15PM EDT (15:00-17:15 GMT). ITRC's Mining Waste Team developed the ITRC Web-based Mine Waste Technology Selection site (http://www.itrcweb.org/miningwaste-guidance/) to assist project managers in selecting an applicable technology, or suite of technologies, which can be used to remediate mine waste contaminated sites. Decision trees, through a series of questions, guide users to a set of treatment technologies that may be applicable to that particular site situation. Each technology is described, along with a summary of the applicability, advantages, limitations, performance, stakeholder and regulatory considerations, and lessons learned. Each technology overview links to case studies where the technology has been implemented. In this associated Internet-based training, instructors provide background information then take participants through the decision tree using example sites. Project managers, regulators, site owners, and community stakeholders should attend this training class to learn how to use the ITRC Web-based Mine Waste Technology Selection site to identify appropriate technologies, address all impacted media, access case studies, and understand potential regulatory constraints. For more information and to register, see http://www.itrcweb.org or http://clu-in.org/live .

Early Life Exposures - Long-term Health Consequences: Session 2, Metals and Metal Mixtures - March 28, 2012, 1:00PM-3:00PM EDT (17:00-19:00 GMT). The second session "Early Life Exposures - Long-term Health Consequences: Session 2, Metals and Metal Mixtures" features SRP grantees Dr. Robert Wright (Harvard University) and Dr. Rebecca Fry (UNC-CH) and their work with early exposure to metals and the resulting developmental effects. To better understand the neurodevelopmental consequences of exposure to mixtures of lead, manganese, and arsenic, Dr. Wright is conducting three cohort studies of metals and neurodevelopment among populations of children in Bangladesh, Mexico and Oklahoma. The combined efforts of these studies investigate the effects of mixed metal exposures on child development, comparing different developmental windows of exposure from prenatal life to age two. Prenatal exposure to cadmium has been associated with poor birth outcomes including low birth weight. Dr. Fry's research aims to obtain a better understanding of the underlying biological mechanisms involved in this association. This study employs in vitro and in vivo approaches to investigate gene-environment interactions that influence cadmium-induced signaling of inflammatory response genes. For more information and to register, see http://clu-in.org/live .

NARPM Presents...Institutional Controls - April 4, 2012, 1:00PM-3:00PM EDT(17:00-19:00 GMT). Come hear the latest on Institutional Controls (IC) during this webinar. Assuming you know the basics about ICs: (1) they are non-engineered components of a remedy, including legal and communication mechanisms to protect the remedy, and (2) most Superfund sites require effective ICs to ensure that remedies remain protective. However, as always, the "devil is in the details." The planning and implementation of ICs has come a long way since the early days of Superfund, as we have had to create and innovate to make ICs work for unique situations. Also, new developments help us with our endeavor for effective ICs. The session will start with a discussion of the latest guidance: the "Planning, Implementing, Monitoring, and Enforcing of Institutional Controls" (PIME) Guidance. We will also briefly touch on the 2011 "Recommended Evaluation of Institutional Controls, Supplement to the Five-year Review Guidance" and other pending IC guidance. This is followed by case study examples involving local ordinances in Region 7, and complex IC issues in Region 5. Finally, a special topic of implementing ICs on Tribal Lands will be examined. All questions and issues related to ICs are welcome! For more information and to register, see http://clu-in.org/live .

NARPM Presents: Two Webinars from the 2011 NARPM Greener Cleanups Sessions - April 17 and 23, 2012. In May 2011, EPA held its annual National Association of Remedial Project Managers (NARPM) meeting in Kansas City, MO, and for the fourth year in a row, one of our most attended sessions was on Greener Cleanups (GC). And like last year, we are offering those talks again to an online audience! EPA's definition of GC includes the practice of considering the environmental effects of a remediation strategy (i.e., the remedy selected and the implementation approach) early in the process, and incorporating options to maximize the

net environmental benefit of the cleanup action. Back in August, we offered the first of three webinar sessions on the Footprint Methodology, and this April we will showcase the remaining two webinars. We've got more case studies and maturing policy and guidance that we'd like to share with an online audience. EPA's Technical Support Project, led by the Engineering Forum, will present these on April 17th and 23rd, both from 1-3pm Eastern. Each 2 hour session will include policy and/or case studies, with time for Q&A along the way. For more information and to register, see http://clu-in.org/live .

> New Documents and Web Resources

New CLU-IN Mining Sites Focus Area and Seminar Series. The new CLU-IN Focus Area on Characterization, Cleanup, and Revitalization of Abandoned Mining Sites launched by the Technology Innovation and Field Services Division (TIFSD) provides site managers, regulatory agencies, consultants, and the general public with information on technologies and resources related to the assessment, characterization, cleanup, and revitalization of abandoned mine lands. The website discusses the most common types of abandoned mining sites, presents a range of traditional and innovative technologies that may be appropriate for cleanup of mining sites, provides resources that can assist in mining waste characterization, revitalization, and reuse, and maintains a current list of Internet seminars and upcoming meetings related to the characterization, cleanup and revitalization of abandoned mining sites. View and use at http://clu-in.org/mining .

Methodology for Understanding and Reducing a Project's Environmental Footprint (EPA 542-R-12-002). EPA developed a methodology to analyze and quantify the environmental footprint of activities often involved in contaminated site cleanup. A project team can use the information gained by application of the methodology to identify best management practices (BMPs) that target large contributions to the footprint at a particular site and help achieve a greener cleanup. The Agency's corresponding report presents a total of 21 metrics corresponding to core elements of a greener cleanup and a seven-step process to quantify the footprint. The report addresses:the purpose of the methodology, the value of footprint analysis, and the associated level of effort and cost; considerations for evaluating and using the analytical results; and illustrative approaches to reduce the footprint through various BMPs (February 2012, 135 pages). View or download at http://clu-in.org/greenremediation/methodology/ .

Brownfields Road Map to Understanding Options for Site Investigation and Cleanup, Fifth Edition (EPA 542-R-12-001). The new Brownfields Road Map publication and companion website provide a general outline of how to assess and clean up a brownfields site and introduce stakeholders to a range of technology options and available resources. General concepts and basic considerations that affect the cleanup of brownfields sites are described with a new "Back to Basics" approach that covers setting reuse goals and planning, understanding regulations and liability concerns, engaging the community and identifying funding. Targeted for non-technical stakeholders and technical professionals, the Brownfields Road Map walks users through the big picture of managing a brownfields site from assessment to reuse and introduces technology options and considerations for each phase. The new Brownfields Road Map website connects users to the publication online and provides direct access to technical resources. View or download at http://www.brownfieldstsc.org/.

An Approach for Evaluating the Progress of Natural Attenuation in Groundwater (EPA 600-R-11-204). The purpose of this document is to present a simple, statistically based approach for evaluating the progress of natural attenuation from the data collected during site characterization and long term monitoring. The intended audience is technical professionals that actually perform the data analyses (i.e., hydrogeologists, engineers) as well as project managers who review those analyses and/or make decisions based on those analyses (December 2011,

84 pages). View or download at http://www.epa.gov/nrmrl/pubs/600r11204/600r11204.pdf .

New Green Remediation Focus RSS Feed. CLU-IN visitors have been notified when new content is posted by subscribing to our RSS feeds since 2005. We have just added a new targeted RSS feed for our Green Remediation Focus area. RSS is a form of web syndication and information aggregation. Instead of having to repeatedly browse websites for information of interest, this information is sent directly to you. CLU-IN's RSS feeds provide headlines and short descriptions of new CLU-IN content with links to the full version. This happens when new content is loaded onto the site. Sound useful? For more information and to subscribe, visit http://clu-in.org/rss/about/ or http://clu-in.org/greenremediation/ .

Technology News and Trends (EPA 542-N-12-001). This issue highlights strategies being used to remediate contaminated soil, sediment, or groundwater while restoring a site's ecological system. The strategies involve constructed wetlands, phytotechnologies, and soil amendments (February 2012, 6 pages). View or download at http://clu-in.org/techpubs.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 recent issues:

- Phytoremediation for the Containment and Treatment of Energetic and Propellant Material Releases on Testing and Training Ranges
- Fusion of Tomography Tests for DNAPL Source Zone Characterization: Technology Development and Validation
- Application of Tools to Measure PCB Microbial Dechlorination and Flux Into Water During In-Situ Treatment of Sediments

Applied NAPL Science Review - January 2012 Issue. This scientific ejournal provides technical insight into the science behind the characterization and remediation of light and dense non-aqueous phase liquids (NAPLs). The first issue of volume two focues on the conversion of TPH to NAPL Saturation. View or download the latest issue at http://www.h2altd.com/ansr .

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 31 resources, events, projects and news items were added to EUGRIS in February 1-24, 2012. 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:

A Risk/Benefit Approach to the Application of Iron Nanoparticles for the Remediation of Contaminated Sites in the Environment (CL:AIRE, CB0440). This report, published in October 2011, provides an update to the Royal Society and Royal Academy of Engineering's 2004 report, which recommended that there should be a precautionary approach to the release of nanomaterials into the environment, until more about the environmental impacts were known. This new report reviews additional research, field studies, and an evolution in the understanding of nanoparticles. View or download at http://www.claire.co.uk/index.php?option=com_phocadownload&view=file&id=275:Other-CLAIRE-Documents&Itemid=61 .

> Conferences and Symposia

Calls for Abstracts for the 'Sustainable Remediation 2012' Conference, Vienna, Austria, November 14-16, 2012. USEPA and CL:AIRE are partenering to host the 'Sustainable Remediation 2012' Conference November 14-16 2012 in Vienna. The conference will provide a

venue for professionals and interested parties from multiple backgrounds to share experiences and perspectives on how contaminated sites can be remediated with a lower environmental footprint, and how their reuse can contribute to a more sustainable development. The conference call for abstracts is open between March 2 and April 27, 2012. For more information, see www.sustainableremediation2012.org .

Facility Decommissioning Training Course, Las Vegas, NV, March 12-15, 2012. The purpose of this Argonne National Laboratory course is to provide information on the basic steps in the decommissioning process and impart lessons learned from past experiences in decommissioning. In this manner, elements learned at this training course will assist in decision-making, planning, and implementation associated with the decommissioning of various types of nuclear facilities. Moreover, a major objective of this training course is to demonstrate the need for early and complete project planning to achieve safe and cost-effective decommissioning of research reactors and other small nuclear installations. For more information and to register, see http://www.dd.anl.gov/ddtraining/ .

LNAPLs: Science, Management, and Technology ITRC 2-day Classroom Training, Boston, MA, April 5-6, 2012. 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 more information and to register, see http://www.itrcweb.org/crt.asp .

Registration Now Open!! 2012 Remediation Innovative Technology Seminar (RITS), Washington, DC, May 1-2, 2012. RITS is the premiere showcase for the latest Navy Environmental Restoration (ER) technology, methodology, and guidance news. The seminar is geared toward Navy Remedial Project Managers (RPMs), but will welcome other Department of Defense personnel, federal/state/local regulators, and contractors (with a current, active Navy ER contract) to attend. The RITS is offered only one time in 2012, so don't miss this opportunity to benefit from high-caliber, Navy-focused information. For more information and to register, see https://portal.navfac.navy.mil/portal/page/portal/NAVFAC/NAVFAC_WW_PP/NAVFAC_NFESC_PP/ENVIRONMENTAL/ERB/RITS_PAGE .

Registration Now Open!! 2012 National Training Conference on the Toxics Release Inventory and Environmental Conditions in Communities, Washington, DC, April 11-13, 2012. This year's theme is "Understanding the Past and Promoting a Sustainable Future." This conference will feature presentations on topics ranging from environmental conditions onTribal lands, to industry achievements in pollution prevention, to what the Toxics Release Inventory (TRI) might look like in 2020. To check out the draft agenda and register, see http://www.chemicalright2know.org/tri-conference/2012-tri-national-conference/ . For questions or more information, please contact Caitlin Briere at briere.caitlin@epa.gov or 202-566-1646.

ITRC's 2012 Spring Membership Meeting, Des Moines, IA, April 16-20, 2012. The 2012 Spring Membership Meeting will offer environmental professionals who are ITRC members from across the country an opportunity to network and collaborate on innovative approaches to solving environmental challenges. As always, this meeting continues to focus on our members by providing the following: meetings for all 2012 ITRC Teams, discussions about ITRC's direction with ITRC's Board of Advisors and Director, opportunities to expand your network in the environmental community, and engagement with ITRC project teams during technical sessions enabling members to discover more about innovative strategies other teams are pursuing for 2012 and beyond. For more information and to register, see http://www.itrcweb.org/2012SpringMeeting.asp .

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 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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