

TechDirect, October 1, 2011

Welcome to TechDirect! Since the September 1 message, TechDirect gained 204 new subscribers for a total of 38,822. 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 Announcements

One Environmental Engineer Position with EPA in Arlington, VA. The duties of this position with EPA's Technology Assessment Branch in Arlington, VA include the use of environmental engineering knowledge and skill to support Superfund remedial project managers, other remedy decision makers, and EPA staff with usable cost and performance data for remedies, particularly for innovative technologies. If interested in this position, apply through USAJOBS through October 4. This position is open to current and former federal employees, and other "status" candidates that are further defined in the official announcement. More information, eligibility criteria, and application instructions are available at <http://jobview.usajobs.gov/GetJob.aspx?JobID=102591506> .

Fall 2012 EPA Science To Achieve Results (STAR) Fellowships For Graduate Environmental Study. The U.S. EPA, as part of its STAR program, is offering Graduate Fellowships for master's and doctoral level students in environmental fields of study. Subject to availability of funding and other applicable considerations, the Agency plans to award approximately 80 new fellowships by July 31, 2012. Master's level students may receive support for a maximum of two years. Doctoral students may be supported for a maximum of three years, usable over a period of five years. The fellowship program provides up to \$42,000 per year of support per fellowship. The application deadline is November 8, 2011. More information, eligibility criteria, and application instructions are available at http://epa.gov/ncer/rfa/2012/2012_star_gradfellow.html .

FY 2012 EPA Brownfields Assessment, Revolving Loan Fund and Cleanup Grant Guidelines - Request for Proposals. These grants may be used to address sites contaminated by petroleum and hazardous substances, pollutants, or contaminants (including hazardous substances co-mingled with petroleum). Opportunities for funding are as follows: Brownfields Assessment Grants (each funded up to \$200,000 over three years; coalitions are funded up to \$1,000,000 over three years), Brownfields Revolving Loan Fund (RLF) Grants (each funded up to \$1,000,000 over five years) and Brownfields Cleanup Grants (each funded up to \$200,000 over three years). The proposal deadline is November 28, 2011. Proposal guidelines are available at <http://www.epa.gov/brownfields/applicat.htm> .

EPA's Apps for the Environment Challenge Update! ♦ Now is the time to vote for

your favorite app! Previous posts on TechDirect described EPA's exciting Apps for the Environment Challenge effort (<http://www.epa.gov/appsfortheenvironment>). ♦ The deadline for apps submissions for this competition was September 16. ♦ We are very excited to report that we received 38 apps and we're so impressed with their creativity and diversity! Now it's time for you to vote - help your favorite app win the People's Choice Award! Vote here: <http://appsfortheenvironment.challenge.gov/submissions>. ♦ Voting closes on Friday, October 7. ♦ Send a message to the developers that you like their work and spread the word! At that same link, you can have fun taking the apps out for a test drive and see which ones you want to use to protect or understand the environment. ♦ Some apps are games, others are available on the Web, and a few are ready to download to your smartphone. The topics range from local air quality to fish in rivers to power plants. Don't forget to keep an eye on our EPA Data and Developer Forum ♦ so you get the latest news about the challenge and tell us what you think should come next. You can also follow the dialogue on Twitter using the #GreenApps hashtag!

> Upcoming Live Internet Seminars

Nanotechnology: Implications and Applications - October 3, 2011, 1:00PM-3:00PM EDT (17:00-19:00 GMT). Nanotechnology encompasses a diverse range of materials with a variety of applications, including those relevant to Superfund sites. As with any new technology, concerns have been raised about the potential for human toxicity and environmental impact of nanoparticles. In this two-part seminar, investigators from the National Institute of Environmental Health Sciences Superfund Research program (SRP) will explore the implications of nanoparticles on human health, as well as applications of nanotechnology-based environmental sensing. Remediation of Superfund sites can release nanoscale particles into the environment, which can pose exposure risks. The health effects of these complex mixtures and materials, especially emerging materials produced by the nanotechnology industry, are not sufficiently well understood. Dr. Ian Kennedy, of the University of California-Davis SRP, will discuss the potential for adverse environmental effects and human health effects that can arise from exposure to both intentionally manufactured and unintentionally produced nanomaterials. The primary focus will be on metals and metal oxide nanomaterials. There remains a compelling need for improved ways to detect and quantify toxic and/or hazardous chemical species found at existing or potential Superfund sites. Better analytical techniques could reduce the cost of monitoring, help improve remediation methods, and more accurately assess the health risks associated with hazardous and toxic species. Nanoscale materials provide an opportunity to develop new methods that could be faster, easier, smaller, and/or less expensive. Dr. Donald Lucas, of the Lawrence Berkeley National Laboratory, and a member of the University of California-Berkeley SRP, will discuss how changing the size of materials to the nanoscale changes their properties. These changes can be exploited to produce sensors and detectors that have the potential to reduce the cost and improve detection limits. Examples include the use of controlled shape silver and gold nanoparticles to detect arsenic and mercury in air and water. For more information and to register, see <http://clu-in.org/live>.

NARPM Presents...Software Demonstration of the ATSDR Brownfields/Land Reuse Site Tool and the ATSDR Dose Calculator Tool - October 4, 2011, 1:00PM-3:00PM EDT (17:00-19:00 GMT). The ATSDR Brownfields/Land Reuse Site Tool is a rapid site screening and multiple chemical exposure dose-calculating tool that allows users to assess sites by past/future use, institutional controls, sensitive populations, and suspected or confirmed contamination. The Dose Calculator tool allows users to compute the amount of a toxic substance an individual may be exposed to (dose). Both tools are widely used by health and regulatory agencies, Tribal

governments, planners, and environmental health professionals. For more information and to register, see <http://clu-in.org/live> .

Innovative Approaches to Mining Site Remediation and Reuse Workshop - October 6, 2011, 8:30AM-10:30AM EDT (12:30-14:30 GMT). The opening plenary session for the Innovative Approaches to Mining Site Remediation and Reuse Workshop will be broadcast live via CLU-IN. Join us to hear opening remarks from Mr. Barnes Johnson, Deputy Director, EPA Office of Superfund Remediation and Technology Innovation, followed by presentations on Global Challenges in Mine Land Remediation. The presentations will feature Pew Campaign for Responsible Mining, Velma M. Smith, Officer, Pew Environment Group, Pew Charitable Trusts, Washington, DC and the International Council on Mining and Metals (ICMM) Sustainable Development Framework, Kelly Payne, Manager, Environment at Kennecott Utah Copper, Salt Lake City, Utah. Participants online will have the opportunity to submit questions to the presenters online. Presentations from the workshop will be posted on CLU-IN following the workshop. For more information and to register, see <http://clu-in.org/live> .

ITRC Incorporating Bioavailability Considerations into the Evaluation of Contaminated Sediment Sites - October 11, 2011, 2:00PM-4:15PM EDT(18:00-20:15 GMT). ITRC's web-based Technical and Regulatory Guidance, Incorporating Bioavailability Considerations into the Evaluation of Contaminated Sediment Sites (Sed-1, 2011) and associated Internet-based training are intended to assist state regulators and practitioners with understanding and incorporating fundamental concepts of bioavailability in contaminated sediment management practices. This guidance and training describe how bioavailability considerations can be used to evaluate exposure at contaminated sediment sites, the mechanisms affecting contaminant bioavailability, available tools used to assess bioavailability, the proper application of those tools, and how bioavailability information can be incorporated into risk-management decisions. This guidance and training also contain summaries of case studies where bioavailability has been assessed and considered in the contaminated sediment remedial decision making process. This guidance and training provide insight on how bioavailability assessments can be used to understand, mitigate, and manage risk at a contaminated sediment site, often at a reduced overall project cost. For more information and to register, see <http://www.itrcweb.org> Or <http://clu-in.org/live> .

NARPM Presents...Superfund on Tribal Lands: Issues, Challenges and Solutions - October 12, 2011, 1:00PM-3:00PM EDT (17:00-19:00 GMT). This presentation will look at the results of the report: Superfund on Tribal Lands: Issues, Challenges and Solutions. The study was done in late 2010, by the Conflict Prevention and Resolution Center, on seven Superfund sites in which at least one tribe had substantial involvement and a mediation/facilitation process was carried out. We will go over the results looking at what issues were most important to the tribes, EPA staff and mediators/facilitators interviewed, where tension commonly arose and how mediation was used. In addition, we will discuss recommendations from the field for EPA's Superfund program and good practices to consider when using a mediator/facilitator. For more information and to register, see <http://clu-in.org/live> .

ITRC A Decision Framework for Applying Attenuation Processes to Metals and Radionuclides - October 13, 2011, 11:00AM-1:15PM EDT (15:00-17:15 GMT). This training and the associated ITRC Technical and Regulatory Guidance document, A Decision Framework for Applying Attenuation Processes to Metals and Radionuclides (APMR-1, 2010), is intended for anyone involved with evaluating, investigating, remediating or managing a site that involves metal and radionuclide contaminants in groundwater. This training and document provides: introduction to key attenuation processes for metals and radionuclides, information on incorporating MNA into remedial alternatives for metals/rads, and an overview of the decision framework on MNA for metals and radionuclides in groundwater within the larger evaluation framework of a

contaminated site. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

ITRC Permeable Reactive Barrier: Technology Update - October 18, 2011, 2:00PM-4:15PM EDT (18:00-20:15 GMT). The ITRC Technical/Regulatory Guidance Permeable Reactive Barrier: Technology Update (PRB-5, 2011) and associated Internet-based training is intended to help guide state and federal regulators, consultants, project managers, and other stakeholders and technology implementers through the decision process when a Permeable Reactive Barrier (PRB) is being considered as a remedy, or part of a remedy, to address contaminated groundwater; and to provide updated information regarding several technical aspects of the PRB using information attained from the more than 15 years that the PRB has been a viable and accepted in situ remediation technology for contaminated groundwater. The guidance and training provides an update on PRBs to include discussions of additional types of reactive media and contaminants that can be treated, design considerations, construction/installation approaches and technologies, performance assessment, and longevity. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/live>.

QA in Electronic Environmental Data Management - October 20, 2011, 10:30AM-4:00PM EDT (14:30-20:00 GMT). Electronic recordkeeping is increasingly replacing handwritten records in the course of normal business. As this trend continues, it is important that organizations develop and implement electronic recordkeeping policies and procedures. This is especially true for scientific data that the US EPA (Agency) uses for drafting regulations and decision making impacting public health. The purpose of this presentation is to share and discuss information on: Version 2 of EPA's Environmental Data Standards (EDS) used to store and share data with its partners (States, Locals, and Tribes), Effective Data Capture and Management Systems (EDCMS), and data quality screening using trend charts and electronic data systems. For more information and to register, see <http://clu-in.org/live>.

NARPM Presents...Conceptual Site Models and Dynamic Remedy Implementation - October 25, 2011, 1:00PM-3:00PM EDT (17:00-19:00 GMT). Effective project administration in today's challenging Superfund environment requires aggressive management of scientific, financial, social, and policy processes. This session will highlight best management and technical practices associated with meeting challenges in systematic planning and project implementation including the use and refinement of conceptual site models and increasing decision confidence through dynamic sampling and dynamic engineering controls. For more information and to register, see <http://clu-in.org/live>.

US and EU Perspectives on Green and Sustainable Remediation, Part 3 - October 26, 2011, 10:00AM-12:00PM EDT (14:00-16:00 GMT). This seminar is a continuation in the series on international green and sustainable remediation efforts (additional information on prior seminars can be found at <http://clu-in.org/consol/>). This two-hour seminar will: (1) provide case studies on how green and sustainable remediation efforts can be implemented; (2) discuss EPA's draft environmental footprint methodology for estimating or quantifying a remediation site's footprint; (3) summarize information presented during the green and sustainable remediation track at the October International Committee on Contaminated Land (ICCL) meeting, including key points from the Common Forum paper on sustainable and risk-informed land management; and (4) provide updates from initiatives around the world. An open forum will be held after the presentations, during which participants will be able to submit questions. For more information and to register, see <http://clu-in.org/live>.

Terrestrial Carbon Sequestration: An Ecosystem Service Provided by Using Soil Amendments for Site Remediation and Reuse - October 27, 2011, 2:00PM-4:00PM EDT (18:00-20:00 GMT). Contaminated land remediation and reuse can provide

ecosystem services, the life-sustaining benefits that people receive from nature such as clean air and water, flood control, climate regulation, recreational opportunities, etc. Soil amendments such as municipal biosolids, animal manures and litters, sugar beet lime, wood ash, among others, are being increasingly used in soil remediation, revegetation, reuse, and ecological revitalization of contaminated properties. In addition to reducing exposure to contaminants at these sites, soil amendments also provide important ecosystem services by restoring soil quality through balancing pH, adding organic matter, increasing water holding capacity, re-establishing microbial communities, and reducing soil compaction. Another important ecosystem service or co-benefit of using soil amendments for remediation is terrestrial carbon sequestration, the process through which carbon dioxide from the atmosphere is absorbed by trees and plants through photosynthesis and stored as carbon in soils and biomass. To date, little research has been published evaluating and quantifying terrestrial carbon sequestration benefits associated with contaminated lands remediated with soil amendments (i.e., Superfund sites, Brownfield sites, etc.). The U.S. Environmental Protection Agency (EPA) conducted a field study and modeling exercise on contaminated land. For the field study, EPA collected and analyzed samples at three field sites to quantify soil carbon sequestration rates after treatment with soil amendments. As part of this study, EPA developed a methodology for field sampling and analysis of carbon in soils at amended sites. EPA's modeling project involved predicting changes in four ecosystem services as a function of remedy implementation activities. This seminar will discuss the importance of the use of soil amendments in the context of soil health and ecosystem services and provide details about the EPA field study and modeling exercise. For more information and to register, see <http://clu-in.org/live>.

ITRC Use and Measurement of Mass Flux and Mass Discharge - November 3, 2011, 11:00AM-1:15PM EDT (15:00-17:15 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>.

> New Documents and Web Resources

Updated CLU-IN Vapor Intrusion Issue Area. Vapor intrusion occurs when volatile chemicals migrate from contaminated groundwater or soil into a building. Volatile chemicals can emit vapors that may migrate through the subsurface and into indoor air spaces of overlying and nearby buildings in ways similar to that of radon gas seeping into homes. Most volatile chemicals are volatile organic compounds (VOCs), but some semivolatile organic compounds (SVOCs), such as petroleum products, and inorganic constituents, such as elemental mercury and radon, can emit vapors leading to vapor intrusion. In extreme cases, the vapors may accumulate in homes and other occupied buildings to levels that may pose near-term safety hazards (e.g., explosion), acute health effects, or odor problems. Typically, however, the chemical concentration levels with vapor intrusion are low, and the odor unnoticeable. In buildings with low concentrations of volatile chemicals, the main concern is whether or not the chemicals pose an unacceptable risk of chronic health effects due to long-term exposure to these low levels. A complicating factor in evaluating the potential risk from chemical exposure due

to vapor intrusion is the common presence of some of the same chemicals from sources with the building (e.g., household solvents and paints, gasoline, drycleaned clothing, and cleaning agents) that may pose, separately or in combination with vapor intrusion, a significant human health risk. View and use at <http://clu-in.org/vi> .

EPA Dioxin Tool Box. Included is the User's Guide for the Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) Template for Soils Assessment of Dioxin Sites. It discusses using incremental composite sampling to evaluate dioxin-contaminated soil. The tool box is available on EPA's website at:

<http://www.epa.gov/superfund/health/contaminants/dioxin/dioxinsoil.html>.

Methodology for Understanding and Reducing a Project's Environmental Footprint. EPA offers the draft Methodology for Understanding and Reducing a Project's Environmental Footprint as an approach for evaluating the environmental footprint of hazardous waste site cleanups. Members of the cleanup community are invited to use the methodology and submit any input to the U.S. EPA Office of Superfund Remediation and Technology Innovation by November 16, 2011 (September 2011, 121 pages). View or download and provide comments at

<http://clu-in.org/greenremediation/methodology/> .

Environmental Cleanup Best Management Practices: Effective Use of the Project Life Cycle Conceptual Site Model (EPA 542-F-11-011). The U.S. Environmental Protection Agency (EPA) supports the use of best management practices (BMPs) as a mechanism for maximizing technical effectiveness and resource efficiency in the execution of site assessment and cleanup projects. This fact sheet is the first in a series of documents that address conceptual site models (CSMs). This fact sheet summarizes how environmental practitioners can use CSMs to achieve, communicate, and maintain stakeholder consensus on site understanding, while satisfying the technical and quality objectives required for each stage of a cleanup project's life cycle. The focus is on defining stages and products of CSMs along with potential applications of CSMs at various stages of a project life cycle. Content herein is presented in a Superfund Program context; however, to the extent practical, text has been written to maximize applicability in other programs and regulatory frameworks. Other agencies and programs may find these concepts useful and environmental cleanup practitioners are encouraged to explore the utility and integration of a project life cycle CSM within their own program requirements and deliverable schedules (September 2011, 12 pages). View or download at <http://clu-in.org/techpubs.htm> .

A Citizen's Guide to Drycleaner Cleanup (EPA 542-F-11-013). The State Coalition for Remediation of Drycleaners (SCRD) has prepared an easy-to-read guide explaining the drycleaner cleanup process and describing the technologies that are most commonly used to clean up contaminated drycleaner sites. This guide was designed specifically for citizens with little or no technical or scientific background (August 2011, 4 pages). View or download at <http://clu-in.org/techpubs.htm> .

Technology News and Trends (EPA 542-N-11-004). This issue highlights assessment and remediation of sites where past use of tetrachloroethene (PCE) at drycleaners resulted in environmental contamination. Topics include commonly used technologies such as soil vapor extraction (SVE), bioremediation, and in situ chemical oxidation (ISCO); renewable energy to power these technologies; and studies on controlling contaminant vapor mitigation (September 2011, 6 pages). View or download at <http://clu-in.org/techpubs.htm> .

Emerging Contaminants - 2,4,6-Trinitrotoluene (TNT)(EPA 505-F-10-010). This fact sheet, developed by the U.S. EPA Federal Facilities Restoration and Reuse Office (FFRRO), provides a brief summary of 2,4,6-trinitrotoluene (TNT), including its physical and chemical properties; environmental and health impacts; existing federal and state

guidelines; detection and treatment methods; and additional sources of information. While TNT is not identified as an emerging contaminant by the Department of Defense (DoD), this compound accounts for a large part of the explosives contamination at active and former U.S. military installations. With its manufacturing impurities and environmental transformation products, TNT presents various health and environmental concerns. This fact sheet is intended for use by site managers and field personnel who may address TNT contamination at cleanup sites or in drinking water supplies (February 2011, 4 pages). View or download at http://www.epa.gov/fedfac/documents/emerging_contaminant_tnt.pdf .

Emerging Contaminants - Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) (EPA 505-F-10-009). This fact sheet, developed by the U.S. EPA Federal Facilities Restoration and Reuse Office (FFRRO), provides a brief summary of the emerging contaminants Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX), including its physical and chemical properties; environmental and health impacts; existing federal and state guidelines; detection and treatment methods; and additional sources of information. RDX is a secondary explosive that is used extensively by the U.S. military in the manufacturing of explosives. With its manufacturing impurities and environmental transformation products, this compound accounts for a large part of the explosives contamination at active and former U.S. military installations. This fact sheet is intended for use by site managers and field personnel who may address RDX contamination at cleanup sites or in drinking water supplies (February 2011, 4 pages). View or download at http://www.epa.gov/fedfac/documents/emerging_contaminant_rdx.pdf .

CleanUp 2011: 4th International Contaminated Site Remediation Conference, Program and Proceedings. The fourth program of the biennial International Contaminated Site Remediation Conference was held at the Hilton Adelaide Hotel in South Australia, 11-15 September 2011. A wide range of topics is covered, encompassing vapor intrusion, permeable reactive barriers, bioremediation, chemical oxidation, emerging contaminants, environmental nanotechnologies, sustainable remediation, innovations in site characterization, and numerous case studies. Extended abstracts from the proceedings are available in one volume (September 2011, 412 pages). View or download at <http://www.cleanupconference.com/2011%20CleanUp%20Conference%20Proceedings.pdf> .

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. More than 17 resources, events, projects and news items were added to EUGRIS in September, 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:

Optimized Strategies for Risk Assessment of Industrial Chemicals through Integration of Non-test and Test Information (OSIRIS). The goal of the project OSIRIS is to develop integrated testing strategies (ITS) fit for REACH that enable to significantly increase the use of non-testing information for regulatory decision making, and thus to minimise the need for animal testing. To this end, operational procedures are developed, tested and disseminated that guide a transparent and scientifically sound evaluation of chemical substances in a risk-driven, context-specific and substance-tailored manner. More information can be found at <http://www.eugris.info/DisplayProject.asp?ProjectID=4732> .

> Conferences and Symposia

Training Opportunities for Small and Disadvantaged Businesses (SDBs). The U.S. EPA Technology Innovation and Field Services Division (TIFSD) is offering training that

is designed to build the technical capacity of SDBs in the site characterization and remediation field. The training is part of an exciting new initiative designed to build the technical capacity of SDBs as they compete for environmental cleanup jobs in a greener workforce. The following courses are scheduled to be offered in New Orleans, LA and New York, New York: Best Management Practices for Site Assessment, Site Remediation, and Green Remediation Footprint Reduction, November 15, 2011 in New York City (<http://trainex.org/1228>); Triad Training for Practitioners, November 16-18, 2011 in New York City (<http://trainex.org/796>); OSC 201, October 17-19, 2011 in New Orleans (<http://www.trainex.org/285>), Removal Process for RPMs, October 18-19, 2011 in New Orleans (<http://www.trainex.org/53>), Waste Treatment, Transportation, and Disposal, October 20-21, 2011 (<http://www.trainex.org/46>). There are no tuition costs for these courses. Other environmental professionals who may find these courses of interest, EPA, federal, state, and tribal technical project managers and stakeholders involved in the cleanup and reuse of hazardous waste sites. For additional information on this initiative, visit <http://clu-in.org/smallbusiness>.

Training Opportunities on Best Management Practices for Site Characterization, Remediation, and Footprint Reduction. The U.S. EPA Technology Innovation and Field Services Division (TIFSD) and the CERCLA Education Center (CEC) is offering training based on best management practices (BMP) implemented by the U.S. EPA, partnership organizations, federal and state partners, and consultants. Participants learn how these BMPs can be used to streamline projects in a legal, technically sound, and cost-effective manner. The following courses are scheduled to be offered in New York, New York: Best Management Practices for Site Assessment, Site Remediation, and Green Remediation Footprint Reduction, November 15 (<http://trainex.org/1228>) and Triad Training for Practitioners, November 16-18, 2011 (<http://trainex.org/796>). There are no tuition costs for these courses. The target audience includes EPA, federal, state, tribal, and private industry technical project managers and stakeholders involved in the development and implementation of BMPs at hazardous waste sites. For additional information about these training courses, visit <http://www.trainex.org>.

Vapor Intrusion Pathway: A Practical Guideline ITRC 2-day Classroom Training, Denver, CO, October 3-4, 2011. Led by internationally recognized experts, this 2-day ITRC classroom training will enable you to learn the latest strategies to conduct site screening and investigations; determine what tools are appropriate to collect quality data and evaluate the results; apply multiple lines of evidence to ensure quality decision-making; build solutions for VI issues through understanding of mitigation options; and network with environmental professionals dealing with this interdisciplinary and complex pathway. Interactive learning with hands-on exhibits, classroom exercises, and frequent Q&A sessions will reinforce these course objectives and contribute to a practical understanding of this difficult pathway. For more information and to register, see <http://www.itrcweb.org/crt.asp>.

Innovative Approaches to Mining Remediation and Reuse Workshop, Arlington, VA, October 6th, 2011. This workshop is sponsored by the U.S. EPA Office of Superfund Remediation and Technology Innovation and the International Committee on Contaminated Land. The workshop will facilitate the information exchange and networking among professionals from the public and private sectors, domestic and international, on mining site remediation and reuse and specifically address: (1) building sustainability into mining site remediation (land conservation, soil amendments, approaches to prioritize the use of limited resources, sludge management, environmental impact assessment practices and sustainable practices), (2) innovations in mining site cleanup technologies (addressing metal mobility, pit lake remediation, treatment reactors, bioavailability, arid land mining, and chemical extracted processes) and (3) engaging communities in site cleanup and reuse decisions (mine impacted waters, socioeconomic perspectives on mining, communities perspective on mining, community renewal programs, First Nations and mining remediation, and corporate

responsibility on mining). For more information, to register, and those interested in participating in the exhibit hall and the poster session, see <http://www.MiningWorkshop.org> .

Hazardous Waste Management - An Overview of CERCLA, October 28, 2011.

During this live webinar, students will hear an introduction to EPA's major site-cleanup statute presented by Senior Attorney Mike Northridge. For more information and to register, see

<https://www.netionline.com/course/DelivDetails.asp?DeliveryNumber=000003332&CourseNumber=OTH155C&NewScreen=N>

Registration Now Open!! Partners in Environmental Technology Technical Symposium & Workshop, Washington, DC, November 29-December 1, 2011.

The Partners in Environmental Technology Technical Symposium & Workshop is a nationally recognized conference focusing on the Department of Defense's (DoD) priority environmental issues. Attendees span the military Services; academic and research institutions; private sector technology and environmental firms; and Federal, state, and local regulatory and policy making organizations. This year's event will offer an opening Plenary Session where the SERDP and ESTCP Projects of the Year will be announced, 15 technical sessions and four short courses, more than 450 technical poster presentations, and exhibitors from funding and partnering organizations. For more information and to register, see <http://symposium2011.serdp-estcp.org/> .

Call for Abstracts!! Seventh Annual Conference on Design and Construction Issues at Hazardous Waste Sites, Philadelphia, PA, April 10-12, 2012.

Hosted by the U.S. EPA and the U.S. Army Corps of Engineers, the conference will facilitate information exchange among professionals from the private and public sectors regarding design and construction issues at hazardous waste sites including effective methods, lessons learned, and application of technologies. Abstracts discussing current practices and approaches, management techniques, and field experiences in design and construction issues are welcomed. Abstracts are due by November 18, 2011. For abstract guidelines, see <https://superfund.usace.army.mil/2012DCHWS> .

Quality Assurance Conference 2011 (21st Annual), Dallas, TX, October 17-21, 2011.

It is sponsored by U.S. EPA Region 6, and open to the public. There are no registration fees. More information, including the agenda, registration form, and hotel information, can be found at www.epa.gov/region6/qa.

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 42 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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