

TechDirect, September 1, 2007

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Welcome to TechDirect! Since the August 1 message, TechDirect gained 262 new subscribers for a total of 28,817. 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>. 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.

> Upcoming Live Internet Seminars

New iCalendar Feature for Internet Seminars. You may now download calendar information for upcoming Internet Seminars on CLU-IN into your own web-based calendar or calendar program. To download these iCalendar files for individual events, simply click the calendar icon next to any seminar on our calendar of upcoming seminars. You will also receive an iCalendar file attached to your registration confirmation email anytime you register for a seminar on CLU-IN. More information is available at <http://clu-in.org/live/>.

ITRC An Overview of Direct-push Well Technology for Long-term Groundwater Monitoring - September 6. Direct-push wells have been used for temporary groundwater monitoring purposes for many years but are generally prohibited for use as long-term groundwater monitoring wells. Recent research indicates that direct-push wells are as well suited for long-term environmental groundwater monitoring purposes as conventionally constructed wells. This training introduces ITRC's The Use of Direct-push Well Technology for Long-term Environmental Monitoring in Groundwater Investigations (SCM-2, 2006), provides a background in the principles of direct-push wells, and presents the state of the art regarding recent research. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/studio>.

ITRC Protocol for Use of Five Passive Samplers - September 11. This training supports the understanding and use of the ITRC Protocol for Use of Five Passive Samplers to Sample for a Variety of Contaminants in Groundwater (DSP-5, 2007). The five technologies included in this document include diffusion samplers, equilibrated grab samplers; and an accumulation sampler. The training starts with information common to all five samples then focuses on each sampler as instructors describe the sampler and explain how it works; discuss deployment and

retrieval of the sampler; highlight advantages and limitations; and present results of data comparison studies. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/studio>.

Uses of ARAMS for Risk Assessment - September 11. ARAMS is a decision-support software tool that incorporates existing databases and models for fate/transport, exposure, intake/uptake, and effects (human and ecological health impacts) into an object-oriented, conceptual site modeling framework. With ARAMS, the user has the flexibility to visually specify, through objects, multimedia pathways and risk scenarios, and can choose which particular module (i.e., model, database) to use for each object. Risk Assessment CSMs can be easily created and exported for documentation and project team involvement. This presentation will be an overview of the program, will show the power of the user environment to combine models, and several example uses; but is not a tutorial and is not intended to inform on the intricacies and nuances of the individual models involved. For more information and to register, see <http://clu-in.org/studio>.

Nanoparticles: Human Toxicology and Risk Assessment - September 12.

The NIEHS Superfund Basic Research Program (SBRP), in collaboration with the Environmental Protection Agency (EPA), presents "Nanoparticles: Human Toxicology and Risk Assessment." By virtue of their small size, nanomaterials may penetrate biological membranes, enter cells, carry high concentrations of absorbed molecules, or show elevated surface reactivity relative to their macroscopic counterparts. Drs. Agnes Kane and Robert Hurt, Brown University, will introduce the emerging field of nanotoxicology and present results on carbon nanomaterials. Dr. Kevin Dreher, EPA ORD, will explore how nanomaterials and their applications could have health implications arising from new routes of exposure and/or toxicities associated with direct exposure to these novel materials, by-products associated with their production/applications, or their interactions with the environment. Dr. Steve Roberts, University of Florida, will discuss challenges in developing information to support each of the basic risk assessment steps - hazard identification, exposure assessment, dose-response assessment, and risk characterization. For more information and to register, see <http://clu-in.org/studio>.

EPA Region 4 Grant Writing Workshop - September 13. The EPA Region 4 Grant Writing Workshop is designed to assist local governments and nonprofit organizations to better understand the proposal criteria and selection process for EPA's brownfields assessment and cleanup grants. Major workshop agenda topics will include: What are the different grant types EPA provides for brownfields? Who is eligible to apply? What is the grant application process? What are threshold and ranking criteria? What makes a good application? For more information and to register, see <http://clu-in.org/studio>.

ITRC Real-Time Measurement of Radionuclides in Soil - September 20.

This training introduces state regulators, environmental consultants, site owners, and community stakeholders to ITRC's Technology Overview document: Real-Time Measurement of Radionuclides in Soil: Technology and Case Studies (RAD-4, 2006), created by ITRC's Radionuclides Team. This training provides information on the basics of real-time measurement systems, how the technologies and data are used, acceptance issues, and case studies. For more information and to register, see <http://www.itrcweb.org> or <http://clu-in.org/studio>.

> New Documents and Web Resources

A Cost Comparison Framework for Use in Optimizing Ground Water Pump and Treat Systems (EPA 542-R-07-005).

This fact sheet has been prepared to provide a framework for conducting cost comparisons to evaluate whether or not to pursue potential opportunities from an optimization evaluation for improving, replacing, or supplementing the P&T system. This document presents the following elements that pertain to cost comparisons associated with long-term ground water remedies: applicability of cost comparisons as part of the optimization process, a framework for conducting cost comparisons, and illustrative examples of applying cost comparisons for various scenarios (May 2007, 60 pages). View or download at <http://clu-in.org/techpubs.htm> .

Final Report: Pilot Region-Based Optimization Program for Fund-Lead Sites, EPA Region III (EPA 542-R-07-011).

This report describes a pilot study for a Region-based optimization program, implemented by a Regional Optimization Evaluation Team (ROET) that was conducted in U.S. EPA Region III at Fund-lead sites with pump-and-treat (P&T) systems. The ROET is comprised of Regional management, Regional technical staff, technical experts unassociated with the sites, and a representative from EPA's Office of Superfund Remediation and Technology Innovation (OSRTI), and the pilot program represents a modification of the process currently used in the nationwide OSRTI program. The report provides a discussion of how the pilot program differs from current practice and lessons learned in the pilot study (August 2007, 50 pages). View or download at <http://clu-in.org/techpubs.htm> .

Long-Term Groundwater Monitoring Optimization, Clare Water Supply Superfund Site, Permeable Reactive Barrier and Soil Remedy Areas, Clare, Michigan (EPA 542-R-07-010).

This report contains a review of the long-term groundwater monitoring network for the Permeable Reactive Barrier (PRB) and Soil Remedy Areas at the Clare Water Supply Superfund Site in Clare, Michigan. The current monitoring network in each area was evaluated using a formal qualitative approach and statistical tools found in the Monitoring and Remediation Optimization System software (MAROS). The report also contains recommendations for the groundwater monitoring networks based the results of these qualitative and quantitative evaluations (August 2007, 174 pages). View or download at <http://clu-in.org/techpubs.htm> .

Long-Term Groundwater Monitoring Optimization, Clare Water Supply Superfund Site, StageRight Area, Clare, Michigan (EPA 542-R-07-009).

This report contains a review of the long-term groundwater monitoring network for the StageRight (former Welltronics) Facility area near the Clare Public Water Supply, Clare Michigan. The current monitoring network was evaluated in September 2006 prior to activation of a new municipal well using a formal qualitative approach and statistical tools found in the Monitoring and Remediation Optimization System software (MAROS). The goal of the groundwater monitoring program is to track changes in concentrations of priority chlorinated constituents that may affect the drinking water remediation system used to treat the public water supply. The report includes recommendations for groundwater sample frequency and location based on current hydrogeologic, pumping, and contaminant conditions (August 2007, 112 pages). View or download at <http://clu-in.org/techpubs.htm> .

Optimization Strategies for Long-Term Ground Water Remedies (with Particular Emphasis on Pump and Treat Systems) (EPA 542-R-07-007).

This fact sheet has been prepared to assist environmental case managers from Federal and State agencies, environmental program managers from private organizations, and environmental contractors with optimization of operating long-term ground water remedies, particularly those that involve pump and treat. It discusses the benefits of optimization, components of a typical optimization evaluation, and components of an optimization program that utilizes such evaluations. Specific optimization evaluation processes that have been implemented by various Federal

agencies are highlighted (May 2007, 33 pages). View or download at

<http://clu-in.org/techpubs.htm> .

Options for Discharging Treated Water from Pump and Treat Systems

(EPA 542-R-07-006). This fact sheet presents information on available options for the discharge of water that results from a P&T remedy. It begins with a discussion regarding the potential value of treated water, followed by detailed descriptions of the following discharge options: discharge to surface water, return of treated water to the subsurface, discharge to a publicly owned treatment works (POTW) or other existing treatment plant, and reuse of treated water (May 2007, 23 pages). View or download at

<http://clu-in.org/techpubs.htm> .

Treatment Technologies for Mercury in Soil, Waste, and Water (EPA

542-R-07-003). This new report contains information on the availability, performance, and cost of eight technologies for the treatment of mercury in soil, waste, and water. It describes the theory, design, and operation of the technologies; provides information on commercial availability and use; and includes site-specific data on performance and cost, where available. This information can help managers at sites with mercury-contaminated media and generators of mercury-contaminated waste and wastewater to: identify proven and effective mercury treatment technologies; screen technologies based on application-specific goals, characteristics, and cost; and apply experiences from sites with similar treatment challenges (August 2007, 133 pages). A copy of the document is available at <http://www.clu-in.org/542R07003> . For hard copies, contact (800) 490-9198 or fax to (301) 604-3408.

Guide to the Assessment and Remediation of State-Managed Sediment

Sites. This report was published by the Association of State and Territorial Solid Waste Management Officials (ASTSWMO). This paper is designed to provide State remedial project managers with information sources and issues related to sediment assessment and remediation. Because previous work, especially that by the COE and EPA, regarding large sites may be helpful, it will often serve as a starting point for a State program (June 2007, 81 pages). View or download at

http://www.astswmo.org/files/publications/cercla/SedimentStateSitesPaper_final.pdf .

State Status in the Implementation of Institutional Controls: Summary of Inventory Findings

. This report was published by the Association of State and Territorial Solid Waste Management Officials (ASTSWMO). The State Superfund Focus Group conducted an inventory of the States and Territories to determine how they are approaching the subject of Institutional Controls (ICs). The objective of this research focused on learning "who's doing what" relative to the use, management, tracking, and enforcement of ICs, and any perceived barriers to their implementation, in order to share this information with all the States, Territories, and EPA (June 2007, 15 pages). View or download at

http://www.astswmo.org/files/publications/cercla/IC-Report-200606/IC%20Report_Final.pdf

Comparison of Remedial Systems Employed at Drycleaner Sites. The State Coalition for Remediation of Drycleaners (SCRD) analyzed data from over one hundred site profiles collected from drycleaning site remediation projects across the United States. The comparative analysis evaluates the various remedial technologies and assessment techniques used at chlorinated and petroleum solvent sites. View or download at http://www.drycleancoalition.org/download/site_profile_paper.pdf .

EUGRIS Corner. New Documents on EUGRIS, the platform for European contaminated soil and water information. See

<http://www.eugris.info/whatsnew.asp?StartYear=2007&Date=August> to access important new information from Europe, including the following documents and web links. Look at the New RESOURCES section under NEWS. More than 44 new resources, projects and news items were added to EUGRIS in August 2007. These include:

Infrastructure for Spatial Information in the European Community

(INSPIRE) Web site. The European Community Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 established an Infrastructure for Spatial Information in the European Community (INSPIRE). The INSPIRE Directive entered into force on the 15th May 2007. INSPIRE is ambitious. The initiative intends to trigger the creation of a European spatial information infrastructure that delivers to the users integrated spatial information services. These services should allow the users to identify and access spatial or geographical information from a wide range of sources, from the local level to the global level, in an inter-operable way for a variety of uses.

The target users of INSPIRE include policy-makers, planners and managers at European, national and local level and the citizens and their organizations. Possible services are the visualization of information layers, overlay of information from different sources, spatial and temporal analysis, etc. For more information, see

<http://www.ec-gis.org/inspire/> .

Low-Level Exposure to Multiple Chemicals - Reason for Human Health

Concerns? A key question in the risk assessment of exposures to multiple chemicals is whether mixture effects may occur when chemicals are combined at low doses which individually do not induce observable effects. However, a systematic evaluation of experimental studies addressing this issue is missing. This report tries to bridge the gap by providing a systematic assessment of published studies against well defined quality criteria. On reviewing the low dose mixture literature, the authors found good evidence demonstrating significant mixture effects with combinations of chemicals well below their individual No Observed Adverse Effect Level (NOAEL), both with mixtures composed of similarly and dissimilarly acting agents. The widely held view that mixtures of dissimilarly acting chemicals are "safe" at levels below NOAELs is not supported by empirical evidence (June 2007, 41 pages). View or download at

<http://www.ehponline.org/members/2007/9358/9358.pdf> .

> Conferences and Symposia

Long-Term Monitoring Optimization (LTMO) Training, Seattle, October

17-18. Responsible parties, Federal Facilities, and EPA have used LTMO methods at more than 100 sites nationwide and are likely to use them at more sites in the future. The methods are used to support decision making regarding optimal location and frequency of groundwater monitoring and to support changes to existing monitoring networks. As a result, it is important for regulators to be familiar with LTMO methods and technical support mechanisms such that appropriate decisions can be made. The training includes a 1-day lecture on a variety of qualitative and quantitative methods including: the Monitoring and Remediation Optimization System (MAROS); the Geostatistical Temporal-Spatial (GTS) algorithm; and the Three-Tiered Monitoring Network Optimization (MNO) approach. A 4-hour hands-on training sessions with the MAROS software program will be offered on the second day for a limited number of attendees. While the training is designed primarily for state and federal regulators, federal facilities cleanup managers, potentially responsible parties (PRPs), and contractors are welcome to participate at no cost. State and federal regulators will receive registration priority. For details about this training and to register, visit

<http://www.trainex.org> .

Fractured Rock Conference: State of the Science and Measuring Success in Remediation, Portland, ME, September 24-26.

This conference is a cooperative effort by NGWA and U.S. EPA to showcase innovative remediation technologies and characterization methods for ground water in fractured rock settings

and make future remediation efforts more effective. The conference offers high-quality training in remediation technologies and geophysics. More information is available at <http://www.ngwa.org/DEVELOPMENT/conferences/details/0709245017.aspx> .

Fourth International Phytotechnologies Conference, Denver, September 24-26. This conference is for regulators, researchers, consultants and site owners. The purpose of this conference is to understand which technologies using plants for environmental goals are currently effective, how best to integrate research science and field application, and what questions need further research. More information is available at <http://www.phytosociety.org> under Awards, Events, and Conferences.

Sediment Remediation Course, Atlanta, October 29-31. This three-day course is sponsored by the EPA Hazardous Substance Research Center/ South and Southwest. The course provides environmental professionals in industry, consulting and government with practical information on how to evaluate the technical suitability of monitored natural recovery, dredging and excavation, or in situ capping remedies for contaminated sediments. It focuses on issues and limitations associated with each alternative, including information on selecting, designing and constructing remedies that maximize long-term effectiveness and minimize short-term impacts. It will also discuss case studies involving the three remedial approaches. For more information and to register, see <http://www.smwg.org/> .

Call for Abstracts! 2008 Conference on Design and Construction Issues at Hazardous Waste Sites, Philadelphia, April 24-25. This conference is hosted by the USEPA and the US Army Corps of Engineers. It will provide a forum for discussion among professionals from the private and public sectors regarding design and construction issues at hazardous waste sites including current approaches, management techniques, lessons learned, and application of technologies. Abstracts are due by November 16, 2007. For abstract guidelines or to register please see the conference website at <https://superfund.usace.army.mil/2008DCHWS> .

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/techdrct> at any time night or day.

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