

## Message #84: February 2004

Welcome to TechDirect. Since the December 1 message, TechDirect gained 190 new subscribers for a total of 18,030. 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 purpose of TechDirect is to identify new technical, policy and guidance resources related to the assessment and remediation of contaminated soil 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.

### ***Solicitation***

**FY 2005 ESTCP Solicitation.** The DoD Environmental Security Technology Certification Program (ESTCP) solicitation for fiscal year 2005 was released on January 8th, 2004. There are three distinct avenues to participate in the program based on your type of organization: DoD organizations, non-DoD federal organizations, and private sector organizations. ESTCP supports the demonstration and validation (Dem/Val) of environmental technologies that address priority DoD environmental requirements. Due dates for proposals and pre-proposals (depending on submission category) are in March and April, 2004. For further information, complete instructions, and frequently asked questions, see <http://www.estcp.org/opportunities/solicitations/index.cfm> .

### ***Internet Seminars***

**ETV Evaluation of Lead-in-Dust Technologies, February 24.** Can field analytical technology can be used to facilitate home reentry/reuse following remediation? Under the umbrella of EPA's Environmental Technology Verification Program, Oak Ridge National Laboratory (ORNL) and the developers of various technologies worked to provide solid information as to the performance of such technologies in answering this fundamental question. ORNL oversaw the testing of two fundamentally different technologies (x-ray fluorescence and anodic stripping voltammetry) in tests conducted by four vendors. This Internet Seminar will review in detail

the results of all six embodiments of these technologies as they analyzed more than 150 samples of lead contaminated dusts in wipes, and experts will be available to answer specific questions about their performance. To register, see <http://clu-in.org/studio> .

## ***Documents and Websites***

**Measurement of Fugitive Emissions at a Region I Landfill (EPA 600-R-04-001).** This report, produced by the U.S. EPA Office of Research and Development, discusses the deployment of a new measurement technology for characterizing emissions from large area sources. The work was funded by the EPA Monitoring and Measurement for the 21<sup>st</sup> Century Initiative. The site selected for demonstrating this technology is a superfund landfill that is being evaluated for recreational use. Data on methane and air toxics were needed to help determine any increased risk to those using the site. Open-path Fourier transform infrared (OPFTIR) spectrometers were used to provide data on both background and surface emissions. The technology provides concentration maps indicating the spatial variability and areas where additional control may be needed. Horizontal scans to identify any hot spots and vertical scans to determine the mass flux using a multiple-beam configuration were conducted. Optical remote sensing-radial plume mapping provided concentration mapping of the site. These data will be used to make decisions about potential recreational use of this site (January 2004, 51 pages). View or download at <http://clu-in.org/programs/21m2/projects/epa600r04001.pdf> or <http://clu-in.org/techpubs.htm> .

**Report on Bioavailability of Chemical Wastes With Respect to the Potential for Soil Bioremediation (EPA 600-R-03-076).** This report was published by the U.S. EPA Office of Research and Development. This report critically evaluates current knowledge of the relationships between the bioavailability of chemical wastes and their susceptibility to bioremediation. The primary focus of this report is the behavior of chemical wastes and naturally occurring (or inoculated) microorganisms in situ — in real-world contaminated field sites. The issue addressed by this report is how bioavailability influences the degree to which the bioremediation outcome is successful (October 2003, 131 pages). View or download at [http://es.epa.gov/ncer/publications/overview/bioavailability\\_complete\\_book.pdf](http://es.epa.gov/ncer/publications/overview/bioavailability_complete_book.pdf) .

**A Review of Emerging Sensor Technologies for Facilitating Long-Term Ground Water Monitoring of Volatile Organic Compounds (EPA 542-R-03-007).** This report, published by the U.S. EPA Technology Innovation Program, summarizes the status of emerging sensor technologies for facilitating long-term ground water

monitoring for a class of contaminants called volatile organic compounds (VOCs). It also describes a number of factors, including regulatory acceptance and cost-effectiveness, that influence the applicability of these technologies. The focus is on long-term ground water monitoring that is generally associated with a selected remedy, such as monitored natural attenuation or pump and treat (November 2003, 61 pages). View or download at <http://clu-in.org/techpubs.htm> .

**ESTCP Cost and Performance Report: Application of Flow and Transport Optimization Codes to Groundwater Pump-and-Treat Systems (CU-0010).** This Environmental Security Technology Certification Program (ESTCP) project evaluated the benefits and utility of applying transport optimization algorithms, operable on desktop computers, versus a traditional trial-and-error approach. The focus was on groundwater pump and treat (P&T) systems. The transport optimization algorithms link mathematical optimization techniques with simulations of groundwater flow and contaminant transport to determine the best combination of well locations and pumping rates for a P&T system. These mathematical algorithms can contribute to long-term operating cost reduction and/or improved performance of these systems with respect to compliance objectives (January 2004, 45 pages). View or download at <http://www.estcp.org/documents/techdocs/CU-0010.pdf> .

**Arsenic Analyzer Evaluations.** The EPA Environmental Technology Verification (ETV) program Advanced Monitoring Systems Center, in cooperation with Battelle, verified the performance of five portable analyzers for arsenic in water. The five analyzers are: Quick Low Range, Quick Low Range II, Quick Ultra Low II, and Quick II, all by Industrial Test Systems, Inc., and PDV 6000 with VAS Version 2.1 Software by Monitoring Technologies International, Pty. Ltd. The four Industrial Test Systems Quick test kits are portable, rapid devices designed for on-site analysis of arsenic in water. The PDV 6000 is a portable analyzer designed for the on-site rapid analysis of heavy metal ions and, for this test, was used to measure arsenic in water. The verification reports and statements are available on the ETV Web Site at

<http://www.epa.gov/etv/verifications/vcenter1-21.html> .

**Guidance for Developing Ecological Soil Screening Levels (OSWER Directive 9285.7-55).** EPA's Superfund program issued ecological soil screening levels (Eco-SSLs) for nine contaminants that are frequently found in soil at Superfund sites. Numerical soil concentrations were presented for antimony, barium, beryllium, cadmium, cobalt, dieldrin, and lead. Narrative statements were developed for aluminum and iron, metals which are often found at

high concentrations under background conditions. The Guidance document describes how these values were developed and how they should be used in screening ecological risks. EPA plans to issue up to 14 more values next year, including values for arsenic, chromium, copper, DDT, PAHs, pentachlorophenol, and zinc. The mammalian toxicity reference values developed for these contaminants can also be used in the baseline risk assessment for sites (December 2003, 100+ pages). The guidance document, the nine contaminant specific documents, and all the appendices are available at

<http://www.epa.gov/ecotox/ecoss/> .

### **Technical and Regulatory Guidance for the Triad Approach: A New Paradigm for Environmental Project Management (SCM -1).**

This document, published by the Interstate technology and Regulatory Council (ITRC), introduces new concepts to the manner in which environmental work is conducted. These concepts can increase effectiveness and quality and save project money. These ideas aren't new but have been developed into a logical approach for environmental project management. The SCM team created this document as a first step to stimulate understanding and discussion of the ideas embodied in the Triad approach. It explains the relationship of the Triad to existing guidance such as the data quality objectives process. It lists the advantages and disadvantages of the Triad and notes regulatory and organizational barriers that may present obstacles to its use (December 2003, 110 pages). View or download at <http://www.itrcweb.org/SCM-1.pdf> .

### **Memo on Treatment Standards for Mercury-Containing Debris.**

The U.S. EPA Office of Solid Waste, issued this October 23, 2003 memorandum to discuss the issues pertaining to the treatment and disposal of debris containing mercury that is subject to the treatment standards for hazardous debris in the RCRA land disposal restrictions at 40 CFR 268.45. The topics discussed in the memorandum have been raised to the Agency as areas for clarification or have arisen from advancements in research and technology. Treatment standards for land disposal for D009 wastes (wastes that meet the toxicity characteristic for mercury) that are not classified as debris and are not wastewaters or mixed wastes are provided in 40 CFR 268.40. Debris and hazardous debris are defined in 40 CFR 268.2. What is excluded from the debris definition is also important; in particular, what is containerized mercury needs to be understood. The memorandum describes four technologies that might be used for mercury-containing debris: microencapsulation, macroencapsulation, source separation, and retorting (October 2003, 8 pages). View or download at

<http://www.epa.gov/epaoswer/hazwaste/mercury/memo1028.pdf> .

**EPA Environmental Technology Opportunities Portal.** The U.S. EPA unveiled a new web portal for environmental technologies in December 2003. Environmental Technology Opportunities Portal (ETOP) was designed to clearly outline and highlight all of EPA's programs that foster the development of environmental technologies giving users direct access to funding and other incentive programs. ETOP relays funding opportunities, information, and links to several EPA programs that assist in development and commercialization and others that foster the use and acceptance of innovative technologies through collaborative recognition and incentive, and advocacy and information programs. To access the ETOP site, see <http://www.epa.gov/etop/index.html> .

**EPA SITE Program Reports.** EPA's Superfund Innovative Technology Evaluation (SITE) program has made a concerted effort to increase the number of SITE Project Reports on their website. There are now over 180 reports available for viewing or downloading (via Adobe Acrobat PDF Format). Many of the older reports that were not available in electronic format have been scanned and placed on the web. For access to electronic copies of the SITE reports see <http://www.epa.gov/ORD/SITE/reports.html> .

## **Conferences and Symposia**

**Designing, Building, & Regulating Evapotranspiration (ET) Landfill Covers, March 9-10, Denver.** This meeting is sponsored by the Phytoremediation Action Team of the Remediation Technologies Development Forum. At this meeting, presenters will share information on federal and state-initiated programs demonstrating and assessing the performance of ET covers, such as the U.S. Environmental Protection Agency's Alternative Cover Assessment Program (ACAP), and present information on ET cover design, construction, monitoring, and regulation for remediation and final closure at sites. For more information and to register, see <http://www.rtdf.org/public/phyto/minutes/default.htm> .

**Vapor Intrusion Attenuation Workshop: A Study of Observed Vapor Intrusion Attenuation, March 15-18, San Diego.** The U.S. EPA's Office of Solid Waste and Emergency Response (OSWER) is hosting a workshop on subsurface vapor-to-indoor-air attenuation factors. This one and one-half day workshop focuses specifically on what is known from measurements about the attenuation factor and vapor attenuation processes in the subsurface. This call for papers is for presentations describing (1) preexisting and newly gathered attenuation-related data sets, (2) methods for correctly and effectively sampling and analyzing soil gas and indoor air data in the

context of a vapor intrusion investigation, and (3) approaches for correctly interpreting VI attenuation data in the light of background concentrations from other vapor sources and site conditions that can impact results. For registration information, see

<http://www.aehs.com/conferences/westcoast/registration.htm> .

**Reminder CALL FOR ABSTRACTS!! Accelerating Site Closeout, Improving Performance, and Reducing Costs Through Optimization, Dallas, June 15-17, 2004.** This conference, sponsored by member agencies of the Federal Remediation Technologies Roundtable, will outline long-term remediation liabilities and optimization needs and opportunities; disseminate existing and emerging optimization strategies, technologies, tools and science; communicate lessons learned; and present remedial optimization within the context of site wide and multi-site management programs. Abstracts for oral presentations must be submitted by February 6, 2004. For information on how to submit an abstract, a list of abstract topics, and how to register for the conference, please visit <http://clu-in.org/siteopt> .

**ESTCP Transport Optimization Short Course, March 17-19, Golden, CO.** This course is sponsored by the ESTCP Optimization Project (see related report above). It is intended to increase awareness of the use of “transport optimization” tools to optimize pumping strategies for real-world plume remediation problems. Transport optimization links mathematical optimization techniques with simulations of groundwater flow and contaminant transport (such as with the MODFLOW and MT3DMS code) to determine the best combination of well locations and pumping rates for a P&T system. It will provide fundamental concepts regarding the transport optimization approach, including a discussion of how to formulate real-world problems in terms of an objective function (to be minimized and maximized) and a series of constraints that must be satisfied. The course will then provide instruction on the use of two transport optimization codes: Modular Groundwater Optimizer (MGO), developed by the University of Alabama, and Simulation/Optimization Modeling System (SOMOS), developed by Utah State University. For more information, see

<http://typhoon.mines.edu/short-course/opt.htm> .

**NOTE:** 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

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