In Print & Online

Addressing Subsurface Cleanup in the Southwest

Proceedings of the Desert Remedial Action Technologies Workshop

U.S. EPA

This workshop, held in Phoenix in October 2007, was sponsored by U.S. EPA and the Arizona Department of Environmental Quality. Desert environments present unique challenges to subsurface cleanup. Groundwater can be extremely deep and the presence of clays and fractured rock can reduce the effectiveness of standard cleanup technologies. The goal of the workshop was to gather experts on remediation in desert environments and exchange ideas for remediating soil and groundwater. The scope was limited to sites with volatile organic compounds, perchlorate, and chromium, as these contaminants present some of the greatest challenges for cleanup.

The proceedings (27 pages) are available at www.epa.gov/osp/presentations/drat/D-RAT_Workshop_Proceedings_(Oct_2-4,_07).pdf.

Will Natural Attenuation Work?

Metal Attenuation Processes at Mining Sites

U.S. EPA

This report, released in October 2007, was published by the U.S. EPA Ground Water Forum and the National Risk Management Research Laboratory. It provides scientists and engineers who are responsible for assessing remediation technologies with background information on monitored natural attenuation processes at mining-impacted sites. Key issues concerning the application of natural attenuation for inorganic contaminants are discussed, such as the geochemical mechanisms responsible for attenuation, attenuation capacity, monitoring parameters, and evaluating whether attenuated metal and metalloid contaminants will remain immobile.

The 13-page paper (EPA 600-R-07-092) is available at www.epa.gov/ada/download/issue/600R07092.pdf.

Help for Watershed Restoration

Integrating Water and Waste Programs to Restore Watersheds: A Guide for Federal and State Project Managers

U.S. EPA

This document, produced jointly by U.S. EPA's Office of Solid Waste and Emergency Response and Office of Water, was designed to enhance coordination across EPA, state, and local waste and water programs with respect to requirements, objectives, funding sources, and implementation activities. It provides guidelines for conducting cross-programmatic watershed assessments and cleanups in watersheds with both water and waste program issues, and provides tools for enhancing program integration. In addition, the document suggests ways to integrate and optimize assessment and cleanup activities.

The 197-page report and appendices are available at www.epa.gov/superfund/resources/integrating.htm.

Federal Rulings Impact Southwest Waters

Imperiled Treasures: How Recent Supreme Court Decisions and Agency Actions Have Endangered Southwest Waters and Wildlife

National Wildlife Federation, Ducks Unlimited, Trout Unlimited, and New Mexico Wildlife Federation

According to this February 2008 report, recent federal actions threaten the protection that the Clean Water Act has provided Southwest waters for 30 years. The report details how two Supreme Court decisions, *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (2001) and *Rapanos v. United States* (2006) jeopardized many of the nation's waters, such as intermittent and ephemeral streams and so-called "isolated" wetlands.

In response to these decisions, the U.S. Army Corps of Engineers and the U.S. EPA issued guidance that

has directly affected waters in the Southwest. In 2003, according to the report, agency guidance effectively removed protections for about 20 million acres of so-called geographically "isolated" waters like playa lakes and wetlands. The authors state that guidance issued in 2007 makes it nearly impossible to protect many intermittent and ephemeral streams, headwater streams, and neighboring wetlands.

According to the report, the Southwest has a disproportionate number of the types of waters that are at risk of losing federal protection because of the new agency guidance. The situation is compounded by prolonged drought and often weak state-level water protection in the region. The report describes specific impacts in Arizona, California, Nevada, New Mexico, and Texas.

The 28-page report is available at www.nwf.org/nwfwebadmin/binaryVault/SW_WATER_REPORT.pdf.

Are Just a Few Bugs OK?

Clean Water: What is Acceptable Risk?

Mark Lechevallier and Merry Buckley, published by the American Society for Microbiology

This report, based on a colloquium held in October 2006, examines the risks related to pathogens in water supplies and puts forth the following recommendations:

- Numerical guidelines, such as EPA's microbial water guidance of one illness per 10,000 individuals in a given year, are useful benchmarks, but may not be suitable for all water exposures. Additional research is needed to validate guidelines and ensure they reflect realistic goals.
- The process of setting water quality standards should strive to include responsibility for developing and implementing special methods to protect sensitive subpopulations. However, equitable standards are meaningless if society cannot afford to meet them.
- The indicator organisms that are currently available are not adequate for developing microbial risk assessments of water. Such assessments should instead rely on measurements of the presence of specific pathogen strains. Rapid, inexpensive, easy-to-use, and easy-to-interpret analytical methods for specific pathogens or "marker" pathogens are needed.
- Microbial risk assessment should broaden the use of available epidemiologic data. Studies are needed to integrate outbreak data to better estimate microbial infectivity under real-world conditions and to evaluate infectivity and dose response for waterborne pathogens.
- An international database of readily assessable pathogen occurrence in drinking water and ambient waters should be established.

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Making such data widely available would better inform microbial risk assessment and risk management and enable the implementation of effective public health initiatives.

- Improved monitoring designs are needed that can capture spatial and temporal variability in pathogen populations. More data and analytical techniques are needed that can improve microbial risk assessment about such variations – especially for variations in water quality in drinking-water distribution systems.
- Research is still needed to determine the dose-response relationships for many important waterborne pathogens. Variability in dose-response results among the strains of the same pathogen should also be investigated.
- Credible animal models need to be developed. Concurrently, researchers must begin to explore animal-free modeling, including tissue cultures, 3-D cell systems, and other in-vitro assays and validate these approaches for animal and human models.
- An independent microbial risk assessment advisory board that includes members from industry and academia and has international representation, is needed to foster more consistent use of the best techniques for evaluating the problems of public health and ambient water.
- The general public needs to know basic information about their source and treatment of drinking water, the need for future treatment upgrades and infrastructure enhancements, and the fundamentals of microbial risk and assessment. Public communication about water-related risks should deliver information in the appropriate context.

The 24-page report is available at www.asm.org.

Gold Rush Impacts, Solutions Set Forth

Mining's Toxic Legacy: An Initiative to Address Mining Toxins in the Sierra Nevada

Sierra Fund

In March, the Sierra Fund released this report that looks at the long-term impacts of the Gold Rush on the culture, environment, and health of Californians. The report covers environmental impacts of historic mining techniques, such as using hydraulic canons to blow down the sides of mountains. It documents the distribution of toxins associated with mining, such as mercury and naturally occurring arsenic and asbestos. The report lays out four strategic recommendations for action in the areas of increased collaboration and research, improved outreach and education, improved education in the medical community, and reformed and funded governmental programs.

The 86-page report is available at www.sierrafund.org/campaigns/mining.

USGS Map Tracks Floodwaters

WaterWatch

U.S. Geological Survey

USGS recently developed an online map that tracks flood conditions across the country. The map identifies stream gauges that show the current flow to be 95 to 98 percent of the historic daily mean flow for all days of the year, those at 99 percent or higher, and those at flood stage. Color codes make it easy to see where floods are occurring. This map is an addition to the agency's WaterWatch suite of web-based streamflow products, a continuing effort to assist the National Weather Service in making accurate and timely flood forecasts.

Other information available from the WaterWatch website include current flood levels, historical peaks, and NWS flood forecast information for each USGS stream gauge. Monthly flood reports are also available that include maximum flows and compare the data made at each station to previous years' observations.

Access the flood tracker at water.usgs.gov/waterwatch/?m=flood%2Cmap&r=us&w=real%2Cmap.

Access National TMDL Info

TMDL Knowledgebase Clearinghouse

Virginia Tech

Virginia Tech's Center for Total Maximum Daily Load (TMDL) and Watershed Studies developed an online database to house selected TMDL-related information and documents in one central location. The searchable site contains TMDL

guidance documents, reviews, and summaries of TMDL-related technical and trade literature, and state-by-state summaries of TMDL programs. State summaries are updated regularly for all 50 states and include the approach and methodology used to develop the TMDLs. In total, about 500 documents are available within this database.

Access the clearinghouse at www.tmdl.bse.vt.edu/site/knowledgebase/.

New CA Ecosystem/Water Blog

On the Water Front

Environmental Defense Fund

This blog addresses the protection of California's ecosystems and ways to provide reliable water supplies for farms and cities. Numerous EDF staff members contribute. Recent posts have focused primarily on issues concerning management of the Sacramento-San Joaquin Bay-Delta and the plight of salmon and salmon fishermen up north.

Visit environmentaldefenseblogs.org/waterfront/.

New Online Drinking Water Journal

Drinking Water Engineering and Science

TU Delft and UNESCO-IHE

Researchers can now read scientific articles on drinking water treatments for free in this international online journal. Major subject areas include water sources, treatment, substances (contaminants), distribution, tools, and applications. The aim of this joint initiative of the Delft University of Technology (TU Delft) and UNESCO Institute for Water Education (UNESCO-IHE) is to increase accessibility to scientific publications, especially for researchers in developing countries. Articles are subject to a peer review by three referees, and authors pay for publication (cost is about €400 for a 10-page article). Unpublished articles are placed on the discussion section of the site.

Access the journal at www.drinking-water-engineering-and-science.net.

Plenty of Help for Small Water Systems

Small Systems Information and Guidance

U.S. EPA

EPA has a wealth of information available on this website for anyone involved in small water systems. Major categories include tools to help manage a small system; tools to help implement drinking water regulations; and information about capacity development, affordability and rate setting, small systems, tribal systems, and variances and exemptions. Within each category are numerous links to guidance documents and other resources.

Visit www.epa.gov/safewater/smallsys/ssinfo.htm.