

Perchlorate Risk Overstated?

In January, the *Los Angeles Times* reported a National Research Council panel finding that perchlorate does not appear to be as much of a health risk as originally thought. While the panel did not recommend a specific drinking water limit, said the *Times*, it did issue a reference dose in milligrams per kilogram of body weight that translates to about 20 times the preliminary dose proposed two years ago by U.S. Environmental Protection Agency of 1 part per billion in drinking water. The National Resources Defense Council disclaimed the findings and accused the panel of being influenced by the Pentagon and the Defense Department, according to the newspaper. Undoubtedly, the debate will continue.

NRC's report is scheduled to be available soon at national-academies.org. NRDC's response is at www.nrdc.org/media/pressreleases/050110.asp.

Minimal Perchlorate in AZ Waters

Last year, the Arizona Department of Environmental Quality, Arizona Department of Health Services (ADHS), Arizona Department of Water Resources, and Arizona Department of Agriculture jointly evaluated the extent and impact of perchlorate contamination in water sources in Arizona, including the Colorado River. Perchlorate is currently considered by the EPA to be an unregulated contaminant, but ADHS has established an Arizona Health Based Guidance Level of 14 parts per billion (ppb) as the maximum concentration of perchlorate in drinking water that can be consumed without resulting in adverse health effects.

Most perchlorate in the Colorado River migrated into Las Vegas Wash, Lake Mead and, ultimately, the Colorado River from manufacturing operations near Henderson, Nevada. Active remediation at the source has reduced the contaminant load to the Las Vegas Wash to less than 200 lbs/day.

More than 100 water samples were

collected and analyzed, together with existing perchlorate data, to determine the impact of perchlorate on Arizona's water resources. Sampling locations included surface waters, groundwater, agriculture irrigation water, groundwater recharge facilities, wastewater treatment plant effluent, and manmade water impoundments. The results, presented in the task force's December 2004 report, show most perchlorate concentrations ranging from non-detection to 7.4 ppb, with the maximum of 15 ppb in a groundwater monitoring well in Yuma.

The 79-page perchlorate report is available at www.azdeq.gov/function/about/download/perchl201.pdf.

\$10M for Water Innovation Projects Awarded in NM

In November, New Mexico Gov. Bill Richardson announced funding of 25 projects chosen to lead the way in providing innovative solutions to New Mexico's water crisis. Once in place, the pilot projects under the Governor's Water Innovation Fund could save the state an estimated 32 billion gallons of water per year.

The fund awarded a total of \$10 million to projects in four categories: water recycling, water production, water conservation, and communities in crisis. Awards were made to public and private entities and nonprofit agencies. Funded projects were judged to be based on good science and economics, were deemed ready for testing and deployment, and are expected to produce results by 2006.

Projects were chosen for their ability to conserve or deliver useable water through innovative technologies that can eventually be applied statewide. The Finance Council and Department of Financial Administration will oversee capital efforts of the Water Innovation Fund, while drawing on technical expertise from the State Engineer's office, the New Mexico Environment Department, the New Mexico Finance Authority, and the State Agriculture Department.

Awards ranged from \$65,000 for a water conservation demonstration project to nearly \$750,000 for an aquifer recharge pilot study. Other funded projects include automated leak detection systems, laundry water recycling, solar distillation, reclamation of produced water, and soil moisture monitoring systems.

Visit www.governor.state.nm.us/2004/news/nov/113004_1.pdf.

Study Urges Caution in Contaminant Source Tracking

From the U.S. Geological Survey

When a community finds that drinking or recreational water contains *E. coli*, residents and officials naturally want to find the cause and fix it—quickly. But several testing methods using *E. coli* to identify the sources of fecal contamination are less accurate in field application than previously reported, according to a recent U.S. Geological Survey (USGS) report published in *Environmental Science and Technology*.

The USGS-led study was among the first to test the accuracy of microbial source tracking methods against samples of known origin, called "challenge isolates." Scientists compared the accuracy of several source-tracking tools in classifying *E. coli* strains to various sources (humans, dogs, geese, deer, horses, pigs, cows, and chickens).

When researchers sent *E. coli* challenge isolates (the sources of which were unknown to those conducting the tests) for testing, many isolates either remained unclassified or were classified to incorrect sources. In all, fewer than 30 percent of challenge isolates were classified to the correct source-animal species by any method.

Within the last five years, state governments have begun using microbial source tracking methods with *E. coli* bacteria to help manage bacteria loads to streams. Various commercial firms offer source tracking services to clients around

the country.

Prior source tracking research reports cite accuracy ranges from 60 to 90 percent for various source tracking methods. The authors of the USGS study attribute the discrepancy between the 60-90 percent rates and the 20-30 percent rates they reported to a number of factors:

- Different bacteria may be present in animals in different seasons. In the USGS study, challenge isolates were collected nine months after the reference feces were collected;
- Too many strains of *E. coli* bacteria may exist in each animal species for effective application with small reference libraries, such as the 900 reference strains in the USGS study. At a cost of \$10 to \$100 to analyze one reference strain, building large source libraries gets expensive rather quickly.
- *E. coli* strains may not be truly specific to one animal source. Some strains have been found in more than one animal source, such as when animals live in close proximity with one another, although no evidence to support this premise was found in the USGS study.

Further research may lead to improvements in current source tracking methods or development of better methods. For the immediate future, researchers and end users would be prudent to use caution and incorporate quality-control measures to validate the accuracy of source tracking results.

The report, "Comparison of Seven Protocols to Identify Fecal Contamination Sources Using Escherichia coli," is available on the USGS website at oh.water.usgs.gov/reports/Abstracts/est-v38-22.pdf.

Report Considers Energy Cost of CA Water

The Natural Resources Defense Council and the Pacific Institute recently released a report, "Energy Down the Drain: The Hidden Costs of California's Water Supply." The report points out the lack of

understanding many western U.S. residents may have regarding the close connection between water and power resources, and further, that water planners at all levels "have largely failed to consider the energy implications of their decisions." The researchers focused on the power used in California to provide water to residents and industry. As an example, in delivering water from the San Francisco Bay-Delta to Southern California, the California State Water Project consumes two to three percent of all electricity used in the state.

The report presents a model for how policymakers can calculate the amount of energy consumed in water use, and then demonstrates the application of the model to three specific areas to show how water planners could use this model in their own regions. The example of San Diego County's search for future water supply options highlighted energy use in urban water systems; examples of the Westlands Water District in Central California and the Columbia River Basin in Northern California illustrated energy use in agricultural settings. Key findings include:

- Water conservation lowers energy use and energy bills.

- Water recycling is a highly energy efficient water source.
- Retiring agricultural land may increase energy use if the water is transferred to other agricultural or urban uses.
- Retiring agricultural land can save energy if the water is dedicated to the environment.
- Diverting water above dams costs power and money.

The report concludes that conservation has much greater potential, and stronger energy-related economic and environmental benefits than has been recognized to date. In addition, the energy benefits of conservation can generate air quality and climate change benefits. Final recommendations include: prioritize conservation funding, enforce existing conservation requirements, require water measurement, promote conservation through conservation pricing, offer conservation incentives, and implement measures to ensure conservation savings.

The 86-page report is available at www.nrdc.org/water/conservation/edrain/contents.asp.



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