Information Service; telephone (703) 487-4650.

**The American Methanol Institute filed suit in the U.S. Court of Appeals** (Washington, DC) on August 27 to stop EPA's rule mandating ethanol in reformulated gasolines. The Institute's suit joins other lawsuits filed by the American Petroleum Institute and the National Petroleum Refiners Association, which argue for a fuel-neutral policy. The rule has been widely criticized as a political favor to agricultural interests, and in August the U.S. Senate came within one vote of eliminating funding for the rule's implementation.

**In the wake of last year's outbreak of *Cryptosporidium* in Milwaukee's drinking water, the American Water Works Association** announced in September a 12-point action plan to prevent or respond to future incidents. The plan mixes technical solutions, public health measures, and community risk-communication efforts. Among the key points is maintaining finished water turbidity levels at ≤ 0.1 nephelometric turbidity units, increasing testing for *Cryptosporidium* in source and finished water, improving relationships with local health and medical communities, evaluating the benefits of tracking sales of anti-diarrheal medicines as an indicator of problems, developing an open and detailed notification system if *Cryptosporidium* is found in finished water, and forming a citizens' group to consider ways to deal with the issue.

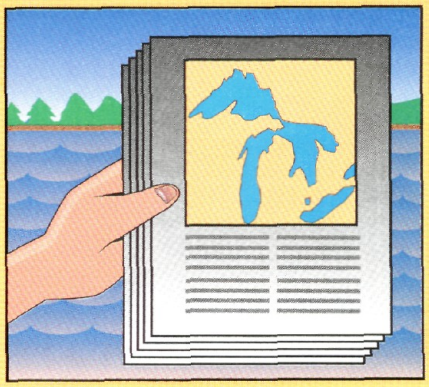
**The National Research Council (NRC) released a report in September entitled "Ranking Hazardous Waste Sites for Remedial Action" that urges federal agencies to work together** to develop a unified approach that is fully open to public scrutiny. Currently, different agencies employ different models for ranking sites according to numerical scores. The report analyzes three of these models used at EPA, the Department of Defense, and the Department of Energy. The report finds that in practice the more data collected at a site, the higher the score and the ranking with EPA's model. The report authors find that these models need better validation of parameters and reference data, clearer documentation of the core elements, and greater public involvement in developing and applying the model. The NRC committee recommends that federal agencies adopt a three-tiered approach to ranking sites and use mathematical models in each step. The steps are screening candidate sites, conducting a detailed site investigation to assess the extent of contamination, and combining the ranking of the risks and remediation costs with broader social and economic considerations.

**Under a final rule effective October 1, air quality data from state, local, and national air monitoring stations must be reported to EPA quarterly**, within 90 days after the end of each quarter. The new rule accelerates the reporting of air quality data, especially for state and local air monitoring systems, which previously reported to EPA annually. The information will go into EPA's AIRS (aerometric information retrieval system) database.

**EPA published an expanded list of acceptable alternatives to ozone-depleting substances under the Significant New Alternatives Policy** (SNAP) program (*Federal Register*, Vol. 59, p. 44240). Acceptable substitutes are listed for use in refrigerators and air conditioners, foam blowing, solvent cleaning, fire suppression and explosion protection, sterilants, aerosols, adhesives, and coatings and inks. Substitutes pending review are included in the notice. For more information contact Sally Rand, Stratospheric Protection Division, (202) 233-9739.

## SCIENCE

**A major, two-year study of herbicides in the Great Lakes** reports that all of the 490 analyzed samples contained atrazine and its transformation product desethyl-



atrazine at ng/L levels. Reporting in this month's *ES&T* (p. 2228), Shawn Schottler and Steven Eisenreich of the University of Minnesota calculate that inventories of atrazine and its metabolites in the Great Lakes may exceed 600,000 kg and that residence times in the water column may be on the order of years. The average atrazine concentrations range from about 20–35 ng/L in Lakes Huron and Michigan to 70–110 ng/L in Lakes Ontario and Erie. Moreover, atrazine may be accumulating in the lakes, say the authors.

**At least one herbicide or atrazine metabolite was detected in 24% of drinking water wells** that draw water from shallow aquifers, according to a just-released report based on a 1991 survey. Moreover, nitrate was found in 59% of the wells. However, except for nitrate in 6% of the samples, none of the detected pollutants exceeded EPA's maximum contaminant levels for drinking water. The study, conducted by the U.S. Geological Survey (USGS), collected 600 samples from 303 wells during the spring and summer of 1991 in 12 midwestern states. The study focused on wells particularly susceptible to pesticide and fertilizer contamination. Corn or soybean fields were located on at least 25% of the land within a two-mile radius of the well, says Dana Kolpin, senior editor of the report. Additionally, the aquifers were within 50 ft of the land surface. Samples were analyzed for 11 herbicides and two atrazine metabolites at a detection limit of 0.05 µg/L; nitrate's detection limit was 3.0 mg/L. Desethylatrazine and atrazine were the most commonly detected herbicides. Copies of the report "Herbicides and Nitrate in Near-Surface Aquifers in the

Midcontinental United States, 1991" (water-supply paper 2413) can be purchased from USGS in Denver, CO. Kolpin also says that the 1992 measurements, which covered 60 herbicides, herbicide metabolites, and insecticides at detection limits as low as parts per trillion, detected herbicides in 62% of the wells.

**Most of the nitrogen in northern Florida panhandle rivers comes from acid rain** rather than from ground sources such as fertilizer runoff, according to a study led by Florida State University (FSU) oceanographer John Winchester (*Geochim. Cosmochim. Acta* 1994, Vol. 58, pp. 1581, 1591). These findings are further evidence that atmospheric deposition plays a major role in water quality. "Regulators need to see the big picture," says Winchester. Nitrogen levels are especially important in Florida because nitrogen constitutes the limiting nutrient in salt waters. Winchester's group reached its conclusions by combining information from two data sets: acid rain measurements from the National Atmospheric Deposition Program and river chemistry studies by the U.S. Geological Survey. Using material balances of the nitrogen input to the watershed and a statistical analysis of the data to account for variability caused by rainfall, the FSU researchers demonstrated that farmland runoff, municipal waste streams, and other ground sources cannot be the dominant source of nitrogen to rivers such as north Florida's Apalachicola. "Rain was the most important source of nitrogen we could find," said Winchester. A similar result was found when the study included 12 rivers stretching from Pensacola to Gainesville.

**Adding iron to ocean waters does stimulate the growth of phytoplankton**, but the resulting drop in surface $CO_2$ levels is too small to suggest that this could be a way to reduce amounts of this greenhouse gas in the atmosphere. Increasing iron concentrations in the ocean where the metal is the limiting nutrient was proposed by the late John Martin as an approach for removing $CO_2$ from the atmosphere and thus averting greenhouse warming. To test the hypothesis, in October 1993 a team of scientists added about 7800 mol of iron to an 80 $km^2$ section of Pacific Ocean 500 km south of the Galapagos Islands (*Nature*, 1994, Vol. 371, p. 143). Measurements showed that the biomass of the fertilized section doubled in a few days and the surface fugacities of $CO_2$ dropped significantly within 48 h. However, the drop was only about 10% of what might have been expected if all the nutrients had been used.

**The burning of vegetation has become a key tool in prairie conservation, but the time of year of the burn** can influence what plants emerge afterwards. In a series of experiments in southern Wisconsin, University of Illinois at Chicago ecologist Henry Howe found that burning in March favors the growth of tall, late-flowering grasses, whereas burning in mid-July favors forbs (broad-leaf plants and wildflowers) and shorter grasses of early summer. Most prairie managers set fires in spring and fall, but, said Howe, mid-summer burns simulate natural, lightning-initiated fires and maximize biodiversity (*Conservation Biology*, September). It is known that burning every year favors grasses and burning every four or five years favors forbs. Most managers burn every year and end up with tall grasses. As a result, argued Howe, rare plants become small populations. "Too many plants are going to disappear because they're being managed out of existence."

**The startup of a $10 million program of hydrological studies, biological inventories, and computerized mapping of the Chesapeake Bay watershed** was announced by the Nature Conservancy Oct. 4. The Conservancy said it will use the funds to examine four key watersheds that flow into the Bay: Nanticoke River, Sideling Hill Creek, Nassawango Creek, and Nanjemoy Creek. More than 400,000 acres will be affected. So far, the Conservancy has raised some $6.5 million from private sources. The funds will be earmarked for land purchases to protect critical parts of the watersheds, as well as for environmental studies, the Conservancy said. It will be the largest private land protection program in Maryland's history and will include efforts of private landowners, government agencies, nonprofit groups, local civic organizations, and corporations, according to the Conservancy. The watersheds were selected for their biological significance and the natural diversity of plants, birds, mammals, and natural communities.

## TECHNOLOGY

**An analysis of various factors affecting the removal of metals from contaminated soils using electric fields** is outlined in this month's *ES&T* (p. 2203). Although electroosmosis and electromigration have been successfully demonstrated in the laboratory, field experiments have yielded mixed results. R. Edwin Hicks and Sebastian Tondorf of the Massachusetts Institute of Technology use laboratory and mathematical models to account for the effect of pH, metal speciation, precipitation, and redox conditions on the removal of zinc by electromigration.