are likely to affect the availability and quality of drinking water in the nation over the next several decades.

The draft is expected to be considered by SAB's Executive Committee in mid-January and then sent to EPA Administrator Carol M. Browner, according to another agency official. The report is expected to be approved without major changes by the Executive Committee, the officials said.

In general, the draft report recommends that EPA take steps to prevent further deterioration of water supplies, and to adopt better management practices regarding land and forest use and wetlands protection, the official said. Better management of water sources would include implementation of water recycling and conservation practices to improve efficiencies of water use, he said.

Decreased sources and increased contamination of drinking water sources, both as a result of population growth, is one of four major factors identified in the report as affecting water supplies.

One of the most serious problems will be the continuing decline of ground water tables, which supply about 50 percent of U.S. residents with water, according to a letter accompanying the draft report.

According to the report, this decline is often related to agricultural uses and practices and often is accompanied by increased contamination with substances such as nitrates and toxic chemicals.

A second factor identified by the report is an increased public demand for cleaner drinking water. The public perception that many drinking water supplies are "contaminated repeatedly" is likely to continue over the next decades, the draft report concluded.

New information on health effects of contaminants also will lead to increased demand for cleaner water, the report said.

Balance Between Chemicals, Microbes

Another major factor outlined by the report is a "changing profile" of chemical and microbial contaminants of concern in drinking water. The chemical contaminants of most concern in water today arise from the chemical treatment of water to reduce microbiological hazards, the report said.

"The most difficult challenges to the production and delivery of safe drinking water in the next decades, therefore, will be in the areas of evaluating and minimizing the competing risks from chemical and microbiological contaminants that occur in water at very low concentrations," the committee wrote in its cover letter.

Finally, a fourth factor is the increased pressure resulting from the above trends to "fundamentally change" the manner in which drinking water is produced, the report said.

To effect this change, the drinking water committee made four recommendations, in addition to improved management of water sources.

The report recommended that EPA:

- Greatly accelerate research to spur advances in risk assessment methodologies for both chemical and microbial contaminants of water;
- Support changes in treatment technologies;
- Support the consolidation of small distribution systems; and
- Establish a surveillance or alert system for emerging waterborne pathogens.

The Science Advisory Board provides independent, expert assessments on scientific matters concerning major problems facing the agency.

Federal Facilities

CLEANUP COSTS FOR NASA WASTE SITES TO BE HIGHER THAN ESTIMATE, GAO SAYS

The cost of cleaning up 650 potential hazardous waste sites run by the National Aeronautics and Space Administration probably will be much higher than NASA's $2 billion estimate, according to a General Accounting Office report.

GAO said in the report, prepared for the House Government Operations Subcommittee on Legislation and National Security and dated Sept. 21, that NASA's "estimates are optimistic and are likely to increase substantially."

In addition, because of tightening budgets, the 20 years the space agency estimates it will take to do the cleanup also is probably unrealistic, the report said.

The basis for GAO's conclusion, the report said, is its similar experience with the Department of Defense, whose estimates for cleaning up its own facilities have risen from $10 billion to about $30 billion.

NASA officials said they believe the $2 billion figure is "an upper limit," according to the GAO report.

The space agency also said it has not made final its estimated cost. However, it has budgeted $35 million to $50 million per year over the next five years to address the problems.

GAO Finds Improvement

In an April 1991 report, GAO said NASA did not have an adequate agencywide program for environmental compliance and restoration. The report said NASA had delegated responsibility for implementing its environmental protection and cleanup policy to its centers without having an agencywide strategy and effective monitoring system.

In its new report, however, GAO said NASA since then has:

- Developed an environmental strategic plan;
- Established an environmental management division at headquarters level with a director;
- Created an environmental management council and a NASA operational environment team;
- Identified potential hazardous waste sites; and
- Completed environmental self-assessments at its major facilities.

NASA's strategy lacks an implementation schedule, GAO said, and will probably take longer than the 20 years predicted by the agency.

Accurately estimating the remediation costs for a contaminated site is difficult, GAO said, particularly if the nature and extent of the problem are not yet known and the agency has not yet picked remediation options and cleanup goals that meet regulators' approval.

GAO's environmental management report on NASA (GAO/NSIAD-94-264R) is available from GAO, P.O. Box 6015, Gaithersburg, Md. 20884; telephone (202) 512-6000.

Wetlands

FARMER HELD LIABLE UNDER CLEAN WATER ACT FOR DREDGING, FILLING 33-ACRE WETLANDS AREA

A Pennsylvania farmer violated the Clean Water Act by converting a 33-acre wetlands area into farmland, a federal appeals court ruled Nov. 22 (*U.S. v. Brace*, CA 3, No. 94-3076, 11/22/94).

The U.S. Court of Appeals for the Third Circuit ruled that Erie County farmer Robert Brace was not shielded by the "normal farming activities," "upland soil and water conservation," or "drainage ditch maintenance" exceptions to the

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act's prohibition against the discharge of pollutants into the nation's waters when he cleared and filled the wetlands site.

The Third Circuit reversed a ruling by the U.S. District Court for the Western District of Pennsylvania that Brace was shielded by the permit exceptions. The Third Circuit remanded the case so the district court could assess a civil penalty against Brace.

The normal farming activities exception applies only to discharges that are part of an established, or on-going, farm operation, the Third Circuit said, not to the conversion of wetlands into farmland.

Similarly, the Third Circuit said, the drainage ditch maintenance exception does not apply to the construction of ditches. Brace laid four miles of new pipe as part of his wetlands conversion project, the court said.

Even farming and other activities exempt from the Clean Water Act's discharge limitations may be "recaptured" and subject to regulation, the Third Circuit said. Brace's conversion of the 33-acre tract from wetlands into farmland subjected him to liability under these provisions, even if he had been originally exempt under the farming exception, it said.

Technology

STRONG PUBLIC, PRIVATE PARTNERSHIP NEEDED TO HELP U.S. COMPANIES, COMMERCE OFFICIAL SAYS

If U.S. companies are to win a significant share of the global environmental technology market, a strong public and private partnership is needed, a Commerce Department official said Nov. 28.

Raymond E. Vickery Jr., assistant commerce secretary for trade development, said the global market for these technologies could exceed $400 billion by 1997, making the establishment of a large market share for U.S. companies economically important.

At an environmental technology business conference sponsored by the U.S. Environmental Technology Export Council and the Environmental Business Council of the United States Inc., Vickery said environmental awareness and demand for environmental services are growing in many countries—particularly in Asia and Latin America, where some countries "for the first time have disposable income."

Currently, Germany and Japan have larger shares of the global environmental technologies market than the United States, according to Vickery. Companies from those countries have significant financial and political support from their governments, making such a partnership necessary for U.S. companies to compete, he said.

Anne Alonzo, deputy assistant commerce secretary for environmental technology exports, said the Latin American environmental technology market is expected to reach $12 billion by 1997.

The bulk of the demand for cleanup and pollution prevention technologies is expected to be in Argentina, Brazil, Chile, Colombia, Mexico, and Venezuela, Alonzo said.

Waste water and water treatment technologies in particular are in demand in Latin America, according to Alonzo.

In Asia, $1 trillion dollars of new infrastructure spending, including the construction of new capital cities and airports in Thailand and Malaysia, make this area a ripe market as well, Peter Gourlay, manager of technology cooperation with the U.S.-Asia Environmental Partnership, told the group.

U.S.-AEP is a government-sponsored trade promotion organization made up of Asian/Pacific and American businesses, community groups, and governmental institutions.

Commerce had outlined its plan to help U.S. companies export environmental technologies to Mexico Nov. 2 in a report, *Mexico: Environmental Technologies Export Market Plan*. Copies of that plan and Commerce's plan for capturing U.S. market share in Chile and Argentina, *Chile and Argentina: Environmental Technologies Export Market Plan*, were made available at the conference.

Mining

INDUSTRY TO SEEK REFORM IN GOP CONGRESS; ENVIRONMENTAL GROUP WARY OF 'SHAM REFORM'

Mining interests will push for reform of the 1872 Hardrock Mining Act during the first session of the 104th Congress, an industry representative said Nov. 23.

A leader of an environmental group, however, said his organization would oppose what he called "sham reform."

Jack Gerard, a spokesman for the Mineral Resources Alliance, an industry group, said any new legislative proposal would address "reclamation, royalties, and patents."

With a Republican majority in both the House and Senate, the mining industry appears to have a more sympathetic legislative body than in the last session of Congress, when an administration-backed reform bill failed to win passage. The failed bill would have established royalties on mining revenue and set federal land-reclamation standards and environmental-protection rules for the industry.

Gerard predicted that both sides would struggle most with the royalty issue. The version of the pro-environment bill passed by the House (HR 322) during the last Congress proposed an 8 percent gross royalty on sales of a commodity. The pro-industry Senate bill (S 775), sponsored by Sen. Larry E. Craig (R-Idaho), proposed a 2 percent net royalty on sales.

Gerard acknowledged that "the makeup of Congress is such that new committee chairmen will be more interested in moderating some of the provisions that our critics appeared interested in." With regard to how sympathetic to industry a Republican-dominated Congress would be, Gerard said, "In many ways, the people who share our concerns are in a better position to help us now."

Two Alaskan Conservatives

Two conservative Alaskan congressmen appear to be slated to take over key committees. Sen. Frank Murkowski (R-Alaska), a vocal proponent of S 775, is likely to chair the Senate Energy and Natural Resources Committee, and Rep. Don Young (R-Alaska) is the leading candidate to head the House Natural Resources Committee.

Gerard insisted that the industry did not want to maintain the status quo, which allows speculators to buy federal land containing valuable minerals at very low prices, and promised that the industry "will support relatively comprehensive reform."

Jim Lyon, a spokesman for the Mineral Policy Center, which favors reforms to better protect the environment, expressed concern about the influence the industry might have with the incoming Congress.

"I would not be surprised if the mining industry tries to pass a sham reform like the Craig bill," Lyon said, referring to S 775. Indeed, the chances are much better for such a bill this Congress, he acknowledged.

Although Republicans now dominate both houses, several moderate Republicans such as Sen. John H. Chafee (R-RI), who is expected to take over leadership of the Senate Environment and Public Works Committee, and Sen. James M. Jeffords (R-Vt) favor reform of the 1872 law, Lyon said.

In addition, there are both fiscal and environmental arguments in the mining-reform debate that "should appeal to conservative factions of the government," Lyon said.