

Two Reports Review DOE's Environmental Cleanup Efforts

Fifty years of nuclear weapons development has left the U.S. Department of Energy (DOE) with the task of managing and disposing of hazardous and radioactive wastes at 120 sites in 36 states and territories. The department estimates that cleaning the sites and safely disposing of the wastes could cost from \$200 billion to \$350 billion and take 75 years.

Improving the Environment: An Evaluation of the DOE's Environmental Management Program, one of two recently published reports from the National Research Council, a private, nonprofit institution that provides science and technology advice under a congressional charter, commends DOE for recent initiatives in its environmental management program to improve contracting and budgeting processes, apply basic research results to environmental problems, and increase public participation in its decisions. Notwithstanding, the committee that wrote the report said that DOE and its contractors have few incentives for moving ahead quickly and effectively with cleanup efforts. Federal budgeting discourages rapid cleanup efforts because the money allocated to those involved decreases as they succeed in reducing the size and seriousness of environmental problems, the committee said. Improving incentives and accountability for federal employees and contractors would be the most effective way to boost DOE's performance in meeting its environmental goals as well as lowering cleanup costs in the short term.

In cases where a permanent solution is not available for cleanup, DOE should exercise "responsible stewardship" by taking appropriate near- or mid-term actions, the committee said. While such actions would allow progress in providing adequate protection against serious and long-term risks to the environment and human health, they should not be relied upon as permanent solutions. They should be re-examined within 20 years so society can decide what to do next.

The report also recommends that new DOE initiatives be evaluated to determine their effectiveness. It calls for the elimination of DOE self-regulation concerning nuclear safety for its employees and contractors, and for the department to take greater advantage of flexibility under existing regulations when encountering roadblocks to meeting environmental objectives.

The 43-member committee included representatives from the scientific and

technological community as well as those with experience in state and federal agencies; citizen, environmental, and Native American groups; and industry.

The committee's study was undertaken in response to a request from DOE for assistance in examining the scientific, technical, and institutional barriers to achieving cost-effective solutions to waste management problems. The study included four public workshops held during the summer of 1995. Each workshop was followed by a meeting of a subcommittee that developed a brief report. The resulting subcommittee reports then were submitted to a synthesis committee formed to draw key points from each of them. The subcommittees' complete reports, as well as that of the synthesis committee, are included in the final volume.

This comprehensive effort also drew upon a number of other works within the National Research Council, many of which are products of the Research Council's Board on Radioactive Waste Management. A committee of that board has been examining since 1993 how DOE manages radioactive and mixed wastes that are buried or contained in tanks.

A new report from this committee, *Barriers to Science: Technical Management of the Department of Energy Environmental Remediation Program*, concludes that the structure of DOE's environmental remediation program has impeded efforts to clean up sites such as those in Lewiston, New York; Fernald, Ohio; and Richland, Washington. The remediation program, also known as "EM-40," is one part of the broader DOE environmental management program. Based on its three-year review of buried and tank-contained wastes, the committee cited problems such as over-expansion of administrative and support functions, priorities driven by narrow interpretations of regulations, and inefficiency. The committee encouraged a "fundamental rethinking" of DOE's environmental management structure so that greater progress can be made on important technical work.

Political forces have contributed to EM-40's problems, the committee said. DOE faces large penalties for any criticism, whether deserved or not, and receives little reward for substantive accomplishments, resulting in incentive structures which are distorted. Externally imposed regulations, such as those of the Environmental Protection Agency and the Occupational Safety and Health Administration, frequently are treated as immutable requirements rather than rules that can be inter-

preted in light of their effectiveness in protecting public health and the environment.

Improving the Environment: An Evaluation of the DOE's Environmental Management Program, can be obtained from the National Academy Press, 2101 Constitution Avenue, N.W., Washington, DC 20418; 202-334-3313 or 1-800-624-6242. *Barriers to Science: Technical Management of the Department of Energy Environmental Remediation Program* is available from the Board on Radioactive Waste Management at 2001 Wisconsin Avenue, NW, Room HA456, Washington, DC 20007; 202-334-3066.

FAA Studies Fire- and Smoke-Resistant Materials

In response to the Aviation Safety Research Act of 1988 (Public Law 100-591) providing the Federal Aviation Administration (FAA) with a mandate to conduct long-term investigations concerned with fire safety, including fire resistance of cabin materials, the FAA Technical Center established a program to investigate improved fire-resistant materials for aircraft interiors, with the objective "to discover the fundamental relationships between the composition and structure of materials and their behavior in fires to enable the design of a totally fire-resistant cabin for future commercial aircraft." The Committee on Fire- and Smoke-Resistant Materials for Commercial Aircraft Interiors published a proceedings volume from its conference held at the National Academy of Science. For better fire-resistance performance in the near term, the committee recommends modification of "specialty polymers including thermoplastics such as polyetheretherketone, polyetherimide, polyphenylene sulfide, and polysulfone and thermosets such as cyanate ester, bismaleimide, polyimide, and polybenzimidazole." In the long term, the committee recommends development of "new, high-performance, thermally stable materials including organic/inorganic polymer systems, copolymers, polymer blends and alloys, and glasses and ceramics." The committee also recommends research in char formation to aid in the development of improved materials. The proceedings, *Improved Fire- and Smoke-Resistant Materials for Commercial Aircraft Interiors*, can be obtained from the National Academy Press, 2101 Constitution Avenue, NW, Box 285, Washington, DC, 20055; 1-800-624-6242; 202-334-3313 (in the Washington metropolitan area). □