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Report to the Secretary of Energy

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DEPARTMENT OF ENERGY

National Priorities Needed for Meeting Environmental Agreements

GAO/RCED-95-1

GAO

United States
General Accounting Office
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Resources, Community, and
Economic Development Division

B-256136

March 3, 1995

The Honorable Hazel R. O'Leary
The Secretary of Energy

Dear Madam Secretary,

This report is one of a series undertaken by GAO to review the Department of Energy's (DOE) management, analyze problems and determine their underlying causes, and identify ways of improving departmental management processes and structures. Specifically, this report evaluates the progress made by DOE in cleaning up its nuclear weapons complex and contains recommendations to you for enhancing the effectiveness of the Department's cleanup strategy.

As you know, 31 U.S.C. 720 requires the head of a federal agency to submit a written statement of the actions taken on our recommendations to the Senate Committee on Governmental Affairs and the House Committee on Government Reform and Oversight not later than 60 days after the date of this letter and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of this letter.

We are sending copies of this report to interested congressional committees and subcommittees; individual Members of Congress; the Director, Office of Management and Budget; and other interested parties. We will make copies available to others upon request.

Please contact me on (202) 512-3841 if you or your staff have any questions. Major contributors to this report are listed in appendix II.

Sincerely yours,

Victor Rezendes
Director, Energy and
Science Issues

Executive Summary

Purpose

From the 1940s, when the nation began to develop nuclear weapons, until the late 1980s, the Department of Energy's (DOE) predecessors and DOE gave little attention to the environmental consequences of their activities. As a result, many DOE sites are now contaminated with radioactive and hazardous wastes, and DOE faces the largest, most complex cleanup task in the country—estimated to cost at least $300 billion and perhaps as much as $1 trillion.

As part of a general management review, GAO evaluated the progress made by DOE in cleaning up its nuclear weapons complex and identified impediments to the task. This report examines DOE's use of environmental agreements with state and federal regulators, many of which are legally binding, and recommends changes in DOE's current approach to cleanup.

Background

By generating radioactive and hazardous wastes at its facilities across the nation, DOE contaminated billions of cubic meters of soil and sediment. Starting in the 1970s, federal and state laws were enacted to regulate the disposal of such wastes. In general, the Environmental Protection Agency (EPA) oversees and enforces DOE's compliance with federal laws while the states where DOE's facilities are located oversee and enforce DOE's compliance with state laws.

To bring its weapons complex into environmental compliance, DOE has negotiated major cleanup agreements for sites on EPA's Superfund National Priorities List. DOE has also signed agreements with EPA and state regulators to correct violations at other sites. These agreements identify activities—generally called "milestones"—and schedules for achieving compliance, many of which are legally binding and enforceable. About $1.8 billion of DOE's annual $6 billion environmental budget is directed at environmental remediation, or "cleanup."

Results in Brief

DOE has prepared reports, investigated sites, and submitted decision documents to regulators, but it has put only a small part of its effort into physically cleaning up its nuclear weapons complex and has yet to complete the cleanup of a major facility. Although its recent performance has been more timely, DOE missed more than 20 percent of all milestones through 1994.

DOE has had difficulty meeting some milestones because it signed unrealistic agreements with regulators. To continue producing nuclear

weapons and avoid prosecution for environmental violations, DOE made commitments it could not meet, given both budgetary and technical limitations. Delays in meeting these commitments led regulators to declare deficiencies and to doubt DOE's credibility. Adversarial relationships developed, making it hard for both parties to renegotiate milestones in response to fiscal constraints or new evidence suggesting that previously negotiated remedies would do little to reduce risks.

Future progress in cleaning up the weapons complex largely depends on how effectively DOE and its regulators can set national priorities and negotiate realistic agreements and milestones under increasingly restrictive budgets. The current practice of negotiating agreements for individual sites without considering other agreements or available resources does not ensure that limited resources will be allocated to reducing the greatest environmental risks. To its credit, DOE has begun to identify milestones that may require revision and to gather data on risks to workers, the public, and the environment. DOE should be able to use these data to set priorities across as well as within sites and to further develop a strategy that will maximize the impact of the resources available for cleanup.

Principal Findings

DOE Has Completed Few Cleanups

DOE has thus far focused largely on activities in the "characterization" phase of the cleanup process—collecting data and investigating sites. These activities, while necessary as part of the agreements between DOE and its regulators, are often lengthy and can delay "remediation," or the actual cleanup of sites, for years. About 16 percent of DOE's 856 cleanup projects are now in the remediation phase. Physical cleanup has been completed for about 13 percent of the projects (or for about 17 percent if projects that required no action beyond characterization are counted). The remainder are undergoing characterization. Increasingly, DOE is also performing "interim actions," or activities related to cleanups that are not required under agreements with regulators. Such actions range from posting signs and putting up a fence to removing contaminated soils. According to DOE, 118 interim actions were completed in fiscal year 1994 and another 100 are planned to be completed in fiscal year 1995.

Although DOE is improving its timeliness, it missed more than 20 percent of the milestones it agreed to complete through 1994. Most of the milestones that it did complete were studies or reports rather than cleanups, and some were low-priority activities. At the Rocky Flats facility in Colorado, for example, where DOE officials said they had tried to maximize the number of milestones they could meet within budgetary constraints, EPA assessed a penalty against DOE in 1993 for choosing to complete several low-priority documentary milestones rather than one high-priority cleanup milestone.

Despite recent data showing some improvement in DOE's performance, the Congress is increasingly questioning the Department's progress. Furthermore, as limits on funding tighten, as the costs of required activities increase, and as growing numbers of milestones come due, DOE is likely to fall farther behind. In 1994, 433 milestones came due, compared with 23 in 1989.

Unrealistic Agreements Have Impeded Progress

After claiming for years that its Cold War military mission exempted it from environmental regulation, DOE was, during the late 1980s, "prodded or dragged to the conclusion" that it would have to consider the environment "to stay in business to produce [nuclear weapons]," according to the former under secretary who presided over the signing of many early agreements with regulators. However, the agreements that DOE reached were often unrealistic—that is, they were not based on adequate assessments of conditions at sites or of the Department's technical capabilities. For example, officials at Rocky Flats, who feared they would be jailed for environmental violations, signed an agreement to clean up the facility over a 10-year period even though, as one of them later told GAO, "any technical person would have known that we couldn't meet the milestones." Similarly, for the Hanford Reservation's cleanup in Washington State, a DOE official said "There was not [then]—and still is not—[any] technology to accomplish this task. . . ."

In negotiating agreements with aggressive schedules, DOE assumed that if milestones could not be achieved, changes would be made. However, DOE has since had difficulty renegotiating some agreements. Given the Department's history of resistance to environmental regulation, many regulators have been reluctant to renegotiate, seeing such requests as evidence of mismanagement rather than as legitimate responses to new information about conditions at sites or new understanding of environmental technologies. In light of regulators' reluctance to

renegotiate, DOE has not sought to revise its commitments to remediate groundwater at 22 sites through "pump and treat" actions whose estimated life-cycle costs exceed $500 million, even though DOE now believes most of these actions will do little or nothing to reduce risks to public health and safety.

DOE has, however, negotiated some more realistic agreements that promote progress. For example, despite a history of vigorous conflict with regulators, DOE reached an agreement with the state of Idaho and EPA that has enabled DOE's Idaho National Engineering Laboratory to complete more remediation milestones than any other site in the weapons complex. This agreement establishes a single regulatory framework for complying with all applicable laws, creates opportunities for communication between DOE and the regulators, and supports a "bias for action" that encourages the use of the most cost-effective methods to remediate the greatest risks.

Future Progress Depends on Adopting a National Risk-Based Strategy

To date, DOE's cleanup strategy has been shaped by site-specific environmental agreements whose priorities and requirements have not always been consistent with technical or fiscal realities. Furthermore, although these agreements may have been designed to allocate resources efficiently at individual sites, under severe budgetary constraints the use of many separately negotiated agreements is not well suited to setting priorities among sites. To establish a baseline for a more comprehensive, risk-based cleanup strategy, DOE is now evaluating the risks and public concerns addressed by agreements at individual sites and identifying milestones that may require revision because they are not technically feasible or do not address immediate threats to health or the environment. DOE could use the results of this effort, which are due to the Congress in June 1995, to set priorities across as well as within sites and to further develop a national cleanup strategy that will target the available resources to the highest priorities.

DOE's past efforts to establish priorities and use them to renegotiate milestones have not been successful—largely because regulators have distrusted DOE's commitment to environmental remediation and have questioned DOE's analytical methods. Consequently, alternatives to the current cleanup program, such as establishing a separate federal or private entity to manage the cleanup, may have to be considered if DOE cannot successfully renegotiate infeasible milestones. Both the Office of Technology Assessment and the former chief of DOE's cleanup program have argued for alternatives to the current program. In 1989, GAO testified

before the Congress that a national commission could help DOE develop a process for establishing a more comprehensive cleanup approach.

Recommendation

To enable DOE to target its resources to the sites that present the greatest risks, GAO recommends that the Secretary of Energy (1) set national priorities for cleaning up the Department's contaminated sites using data gathered during DOE's ongoing risk evaluation as a starting point and (2) initiate discussions with regulators to renegotiate milestones that no longer reflect national priorities.

Agency Comments

Although DOE maintained that many factors limit the practicability of developing a risk-based national strategy, it acknowledged a need to renegotiate its agreements with regulators in light of new budgetary and risk-based priorities. Such an approach, DOE now concedes, approximates a national strategy such as GAO is recommending.

DOE's comments and GAO's responses are presented in appendix I and at the end of chapters 2, 3, and 4.

Contents

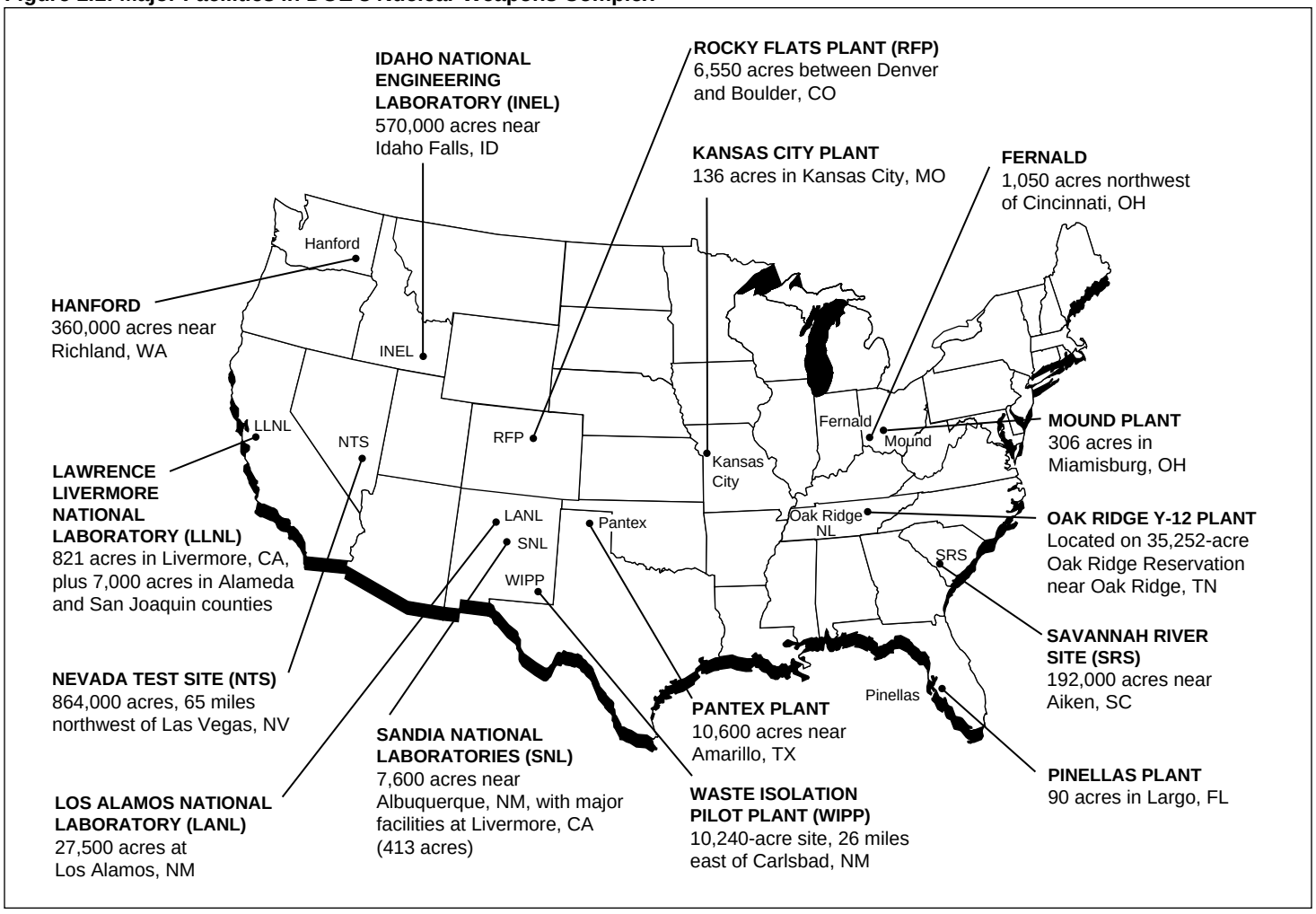
Abbreviations

CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DOE	Department of Energy
EM	Office of Environmental Management
EPA	Environmental Protection Agency
ES&H	Environmental, Safety and Health
GAO	General Accounting Office
MEPAS	Multimedia Environmental Pollutant Assessment System
NPL	National Priorities List
RCRA	Resource Conservation and Recovery Act

Introduction

Today, DOE faces the environmental legacy of its predecessors' and its own production of nuclear weapons. According to a recent DOE estimate, the cleanup of contamination at over 7,000 sites—at 15 major facilities (see fig. 1.1) and more than 100 smaller facilities across the nation—will cost at least $300 billion (and perhaps as much as $1 trillion) and take more than 30 years to complete. Although DOE's predecessors and DOE long resisted environmental regulation, the Department committed itself at the end of the Cold War to achieving compliance with federal and state environmental laws and to establishing sound waste management practices for the future. DOE's primary mission is now to complete the single largest environmental program in history.

Figure 1.1: Major Facilities in DOE's Nuclear Weapons Complex



Source: GAO's illustration based on DOE's data.

History of DOE's Waste Management

For more than 50 years, DOE and its predecessors focused on producing nuclear weapons, giving relatively low priority to managing waste, whether hazardous (toxic) or radioactive or both (mixed waste). Many people in DOE's nuclear weapons complex had been aware of the problems from the beginning, although they may have underestimated the severity of the hazards or the difficulty of cleaning up the contamination. During the Cold War years, when resources were constrained, production was generally given priority over waste management, barring an immediate safety hazard. Now, DOE's workforce is expected to give its highest

attention to the cleanup activity that was long regarded as a secondary concern. At the Hanford Reservation in Washington State, for example, DOE's contractor generated radioactive waste without providing adequately for its disposal or control. Beginning in 1944, the contractor filled single-shell steel tanks with high-level radioactive liquids. In 1959, officials first identified leaks in the tanks. Since then, definite or possible leaks have been found in 67 out of 149 single-shell tanks. Estimates of leakage range between 670,000 and 900,000 gallons of waste. Starting in 1971, radioactive liquids were also placed in 28 double-shell tanks, whose walls have two layers of steel rather than one (see fig. 1.2). As of December 1992, no leaks had been detected in these tanks, but the wastes in six of them are potentially explosive.

Figure 1.2: Construction of Double-Shell Tank at Hanford

Source: DOE.

During the Cold War, DOE's predecessors and DOE operated in secrecy, largely without environmental guidelines. When environmental laws were enacted, starting in the 1970s, the energy agencies[1] claimed exemption from both federal and state provisions on national security grounds. In 1984, however, a federal district court ruled that the Resource Conservation and Recovery Act (RCRA) applied to nonradioactive hazardous waste at one of DOE's facilities.[2] DOE accepted this ruling as applying to all of its nuclear facilities.

Following the court's 1984 ruling, DOE's official policy called for full cooperation with federal and state environmental regulators, as well as full compliance not only with RCRA but also with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA, commonly known as Superfund), and other environmental requirements. DOE has acknowledged that its cleanup of the nuclear weapons complex is subject to regulation by the Environmental Protection Agency (EPA) and the states.

When the Cold War came to an end in 1989 and the demand for nuclear weapons declined, DOE declared a new mission for the Department—compliance with environmental laws and the cleanup and restoration of contaminated sites. To reconcile this new mission with the old weapons production mission, the previous administration undertook several initiatives:

- In June 1989, DOE announced a 10-point management plan to make production priorities and environment, safety, and health (ES&H) priorities compatible. The plan focused on (1) bringing facilities into compliance with federal, state, and local ES&H laws and regulations, as well as DOE orders; (2) strengthening safety, environmental protection, and waste management programs; (3) resetting priorities for incentives and awards paid to contractors by emphasizing ES&H requirements, including those associated with state and federal cleanup laws and compliance agreements; and (4) establishing a program under which teams of technical experts—commonly called "Tiger Teams"—performed comprehensive assessments of compliance with ES&H requirements at DOE facilities.
- In August 1989, DOE released its first environmental restoration and waste management 5-year plan for the weapons complex. This plan set out an

[1]The Atomic Energy Commission (1946-75), the Energy Research and Development Administration (1975-77), and DOE.

[2]Legal Environmental Assistance Foundation v. Hodel, 586 F. Supp. 1163 (E.D. Tenn. 1984).

agenda for compliance with existing federal and state laws and outlined a 30-year goal for cleaning up all inactive waste sites.

- In the fall of 1989, DOE created the Office of Environmental Restoration and Waste Management—now known as the Office of Environmental Management—to accomplish these goals.

The Office of Environmental Management

With the creation of the Office of Environmental Management (EM), DOE consolidated departmentwide responsibility for waste management and cleanup, giving this mission the attention of top-level management. EM has grown to spend over $6 billion a year—nearly $1 of every $3 appropriated to DOE. Between 1989 and 1993, DOE received over $23 billion for environmental activities.

EM is responsible for identifying and reducing risks and managing wastes at 137 facilities in 34 states and territories where weapons or nuclear energy research and production generated hazardous, radioactive, or mixed wastes. EM is also responsible for managing spent nuclear fuel, directing transportation and emergency response activities, controlling and accounting for materials, and ensuring safeguards and security. Finally, EM has site management responsibilities at four facilities where DOE formerly conducted nuclear operations. At the Hanford Reservation in Washington State, DOE produced plutonium at the world's first full-scale reactor; at the Fernald Environmental Management Project in Ohio and at the Idaho National Engineering Laboratory in Idaho, it produced uranium metals for weapons; and at the Rocky Flats facility in Colorado, it fabricated the triggers for nuclear weapons. EM may soon become responsible for cleaning up other DOE installations as they are shut down or decommissioned for other uses. In fiscal year 1996, EM will gain additional site management responsibilities at the Savannah River Site, where DOE produced tritium and plutonium and at the Mound and Pinellas plants, where DOE produced weapons components.

EM is currently organized around four major activities: environmental restoration, waste management, facility transition and management, and technology development. EM has also given priority to strengthening its relationships with local communities and citizen review groups.

- Through the environmental restoration activity, for which $1.8 billion was made available for fiscal year 1994, DOE assesses and cleans up past environmental contamination. It decontaminates and decommissions

permanently closed DOE facilities and cleans up soil and groundwater, seeking to eliminate or reduce risks to prescribed, safe levels.

- Through the waste management activity, for which $3 billion was made available for fiscal year 1994, DOE treats, stores, and disposes of all generated waste. The Department plans to dispose of highly radioactive defense waste in a proposed underground repository, while it intends to place less radioactive defense waste, contaminated with long-lived plutonium, in a repository called the Waste Isolation Pilot Plant, located near Carlsbad, New Mexico.
- Through the facility transition and management activity, for which $671 million was made available for fiscal year 1994, DOE plans and implements the final disposition of facilities that it no longer needs for its other operating programs. Because many of these facilities are contaminated with hazardous and/or radioactive materials, special controls and monitoring are necessary during and after closure to protect public health and the environment.
- Through the technology development activity, for which $397 million was made available for fiscal year 1994, DOE carries out applied research and development to focus, manage, and accelerate the development and implementation of new and existing technologies to meet specific requirements of the environmental restoration, waste management, and facility transition and management activities.

The climate in which DOE now operates is more open and accountable to the Congress, state and federal regulators, environmental organizations, and community groups. The shift in dominant missions from weapons production to cleanup has enabled DOE to operate under public scrutiny and work with public officials and private groups across the country.

Environmental Laws

DOE's cleanup of the weapons complex is framed by goals and procedures established primarily under RCRA and CERCLA, as well as state environmental laws and regulations, most of which were developed during the past two decades. These laws and regulations address waste problems at both active and inactive DOE sites.

Requirements Under RCRA

RCRA, as amended, regulates the management of facilities that treat, store, or dispose of hazardous wastes and the cleanup of hazardous wastes released from such facilities. Although RCRA does not regulate radioactive waste, it does, according to a June 1987 DOE interpretive rule, apply to the hazardous component of mixed waste. (The Atomic Energy Act of 1954

regulates both radioactive waste and the radioactive component of mixed waste.)

RCRA requires a permit for a facility to treat, store, or dispose of hazardous wastes. But before EPA or an authorized state can issue an operating permit for the facility, the facility must correct or plan to correct any release of hazardous materials, including any release from an inactive site. If the facility cannot immediately correct such a release, the permit must contain schedules for achieving compliance. These schedules are often contained in compliance agreements between the regulators and DOE.

Requirements Under CERCLA

CERCLA provides authority for the cleanup of the nation's inactive or abandoned waste sites. While federal agencies are required to comply with CERCLA to the same extent as private entities, moneys from the cleanup fund authorized by CERCLA (the Superfund) are not available to them. Instead, federal agencies must pay for cleanups from their own or other appropriations. In addition, under CERCLA radioactive materials are considered hazardous substances.

DOE's weapons facilities are subject to CERCLA's procedures, standards, and methods for identifying, assessing, and remedying releases of hazardous substances, pollutants, and contaminants. The first phase of the remediation process is the preliminary assessment, during which DOE gathers readily available information on the extent of contamination at a facility so that EPA can determine whether emergency action is called for, additional investigation is needed, or no further action is necessary.

If additional information is needed, the second phase begins and the site must be inspected. During this inspection, environmental samples are usually collected. If the results of the inspection reveal substantial contamination, EPA uses a hazard-ranking system to identify the site's potential hazard to the environment and public health; sites assigned a score of 28.5 or more may be added to the National Priorities List (NPL). Most of the facilities within DOE's weapons complex have been placed on the list or are being considered for listing. Currently, 19 DOE facilities are listed. Within 6 months of being listed, a facility—in consultation with EPA—must begin (1) a remedial investigation, which assesses the extent, nature, and potential risks of the contamination, and (2) a feasibility study, which evaluates various remedial alternatives. Within 180 days after EPA reviews the remedial investigation and feasibility study, officials at an NPL facility are required to enter an interagency agreement with EPA for

remedial actions. DOE's policy has been to enter into agreements with regulators as soon as possible after a site has been placed on the NPL. If a DOE site is not on the NPL, CERCLA provides that state laws on removal and remedial actions shall apply.

Interagency agreements provide for enforcement by the parties and citizens, penalties for failure to comply with the schedule or terms of the cleanup, and procedures for obtaining funds and resolving disputes. In addition, interagency agreements provide a means to integrate a facility's cleanup obligations under CERCLA and under RCRA. Other CERCLA provisions require health assessments at all NPL sites and add state environmental standards to the cleanup requirements for each site.

Multiple Requirements

A DOE facility that has active and inactive hazardous waste sites may be subject to requirements under both RCRA and CERCLA because a federal facility regulated under RCRA may also appear on the NPL if it meets CERCLA's listing criteria. EPA first included federal facilities that were subject to RCRA's corrective action requirements on the NPL in 1989. After being included on the list, such facilities become subject to the cleanup actions and procedures specified under CERCLA as well as to the requirements for corrective action established by EPA or a state regulatory agency under RCRA.[3]

Agreements and Milestones

DOE has been negotiating agreements to address environmental violations at most of its major facilities since the mid-1980s. It has reached interagency agreements with EPA for most of its sites on the NPL and has entered into agreements with EPA and states to correct other environmental violations. Of 102 agreements signed since 1989, 22 have been completed or renegotiated, and 80 remain active.[4]

Both DOE and its regulators use agreements and milestones to set priorities and schedules at individual sites. In addition, DOE uses agreements in budgeting as a basis for requesting funding from the Congress for environmental management activities. DOE reports that about 80 percent of

[3]For more information on the integration of requirements under RCRA and CERCLA, see Nuclear Cleanup: Difficulties in Coordinating Activities Under Two Environmental Laws (GAO/RCED-95-56, Dec. 22, 1994).

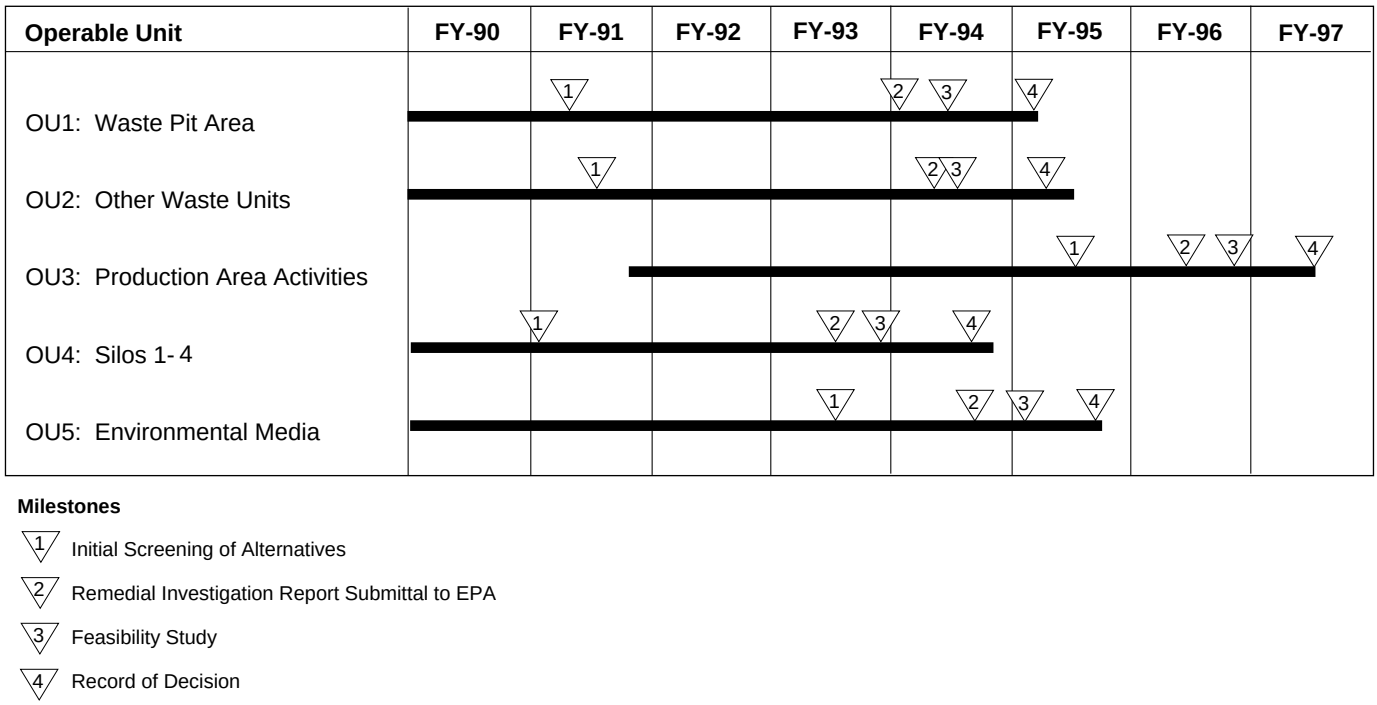
[4]This count is based on a DOE list of federal and state agreements, dated May 19, 1994. Requirements under these agreements range from single actions to cleanups of entire sites.

its cleanup budget is targeted to meet milestones and satisfy environmental regulations.

Although DOE—and, to a lesser extent, its regulators—uses the number of milestones completed as a primary measure of its progress in performing agreements, milestones vary widely in their complexity and are often not comparable. For example, milestones range from completing studies or preparing reports to physically cleaning up contaminated areas. Furthermore, milestones are aggregated at some sites but not at others. Thus, at Hanford, one milestone requires DOE to complete six remedial investigations/feasibility studies per year, while at Rocky Flats, one milestone requires DOE to provide state regulators with a work plan for a remedial investigation/feasibility study of a single area or structure, called an operable unit, within the site.

The scope of a cleanup agreement for an NPL site can be illustrated by the agreement addressing contamination at the Fernald Environmental Management Project, located near Fernald, Ohio. The cleanup of this 1,050-acre facility is organized around operable units that were defined on the basis of their location or their potential for the use of a similar cleanup technology. For each operable unit, a series of milestones defines activities that must be completed by certain dates. For example, one operable unit, which covers approximately 37 acres, includes a waste pit containing over 500,000 cubic yards of low-level radioactive waste and mixed waste. The milestones for this operable unit, which include conducting a feasibility study (to evaluate the effectiveness of different treatment methods for stabilizing the waste) and preparing a draft record of decision (to document the chosen method of cleaning up this operable unit), were due to EPA in December 1994. Figure 1.3 shows the milestones associated with completing remedial investigations and feasibility studies for the entire facility.

Figure 1.3: Fernald Agreement Milestone Schedule



Note: Additional milestones and an additional operable unit, known as the comprehensive operable unit, address other activities for the entire facility.

Source: Adapted from an illustration in DOE's fiscal year 1993 site-specific plan for the Fernald Environmental Management Project.

In addition to monitoring the number of agreements and milestones it has completed, DOE measures its progress in cleaning up sites by tracking the number of "interim actions" it has taken. Unlike agreements and milestones, these actions are not negotiated with regulators but are planned by DOE to deal with immediate problems encountered in long-range projects. Examples of interim actions include removing asbestos from a reactor building at Idaho, applying herbicide to prevent the movement of contaminated tumbleweed at Hanford, adding security patrols at Oak Ridge to prevent the theft of contaminated scrap at a quarry, and posting radiological signs at Fernald.

Objectives, Scope, and Methodology

The objective of this report was to identify factors that hamper progress in the cleanup of DOE's nuclear weapons complex. To obtain information about internal obstacles to progress, we met with senior officials and staff in the Office of Environmental Management, which is responsible for implementing the waste cleanup program. We also met with senior officials in the Office of Environment, Safety, and Health, which oversees the cleanup for the Secretary of Energy. In addition, we interviewed officials at field offices involved, or anticipating involvement, in major cleanups because these offices play an important role in implementing EM's program.

To document EM's progress in meeting agreement milestones, we asked DOE to select data on all milestones due between June 1, 1992, and May 31, 1993. For each missed milestone, we asked DOE to identify a root cause of the delay, which we confirmed by reviewing available documentation. We then sorted these data by site, by cause, and by field office. For a sample of missed milestones, we discussed the reasons for the delays with the applicable state and/or EPA regulators. We also discussed with DOE the data on milestones that it had collected for 1993 and presented in its Environmental Management 94 report, as required by the National Defense Authorization Act for 1994, as well as the results of its Phase II Milestone Review.

To obtain information about external factors influencing DOE's progress in managing the cleanup program, we interviewed DOE contractors; EPA headquarters and regional officials; state officials; officials from other federal agencies reviewing DOE's efforts, including the Office of Technology Assessment and the Congressional Research Service; and stakeholders from environmental and local citizen groups. We also reviewed reports on DOE programs, including internal documents assessing the management of specific EM programs or projects.

We conducted our work between April 1992 and December 1994 in accordance with generally accepted government auditing standards.

We obtained written comments on a draft of this report from DOE. DOE provided us with two letters and an attachment that was too long for us to reproduce in this report. DOE's letters and our responses appear in appendix 1, and DOE's comments—including some that appeared in the attachment—are discussed, as relevant, at the end of chapters 2, 3 and 4. We also discussed a draft of this report with state and EPA officials and

incorporated their comments where appropriate throughout the body of the report.

Cleanup of DOE's Weapons Complex Has Been Limited

Although DOE has spent significant sums on environmental activities, it has confined most of its efforts to preassessment or assessment actions, such as preparing reports, investigating sites, and submitting documents to regulators. To date, it has not finished cleaning up any of its major facilities. Overall, "remediation," or actual physical cleanup, is still a small part of DOE's activity.

DOE's Cleanup Progress Has Been Slow

On the basis of fiscal year 1994 year-end data, DOE reported that its environmental restoration program includes 856 projects encompassing more than 7,000 release sites.[5] Information obtained from characterizing sites indicates that 689 of these projects will require remedial action, while another 167 will require decontamination and decommissioning.[6] DOE's progress in addressing these projects is as follows:

- 574, or 67 percent, are in the characterization or assessment phase. For 275 projects, preliminary investigations have been conducted, but full-scale characterization has not begun. For 299 projects, remedial investigations or similar activities are under way.
- 109, or 13 percent, have been completely cleaned up. DOE reports that the physical cleanup has been completed for 17 percent; however, this calculation includes 33 projects that required no further action beyond characterization.
- 140, or 16 percent, are in the remedial design phase or actual remediation. These include decontamination and decommissioning projects across the complex. EM plans to complete 16 of these projects in fiscal year 1995.

DOE Fell Behind Schedule

DOE missed almost 30 percent of its enforceable agreement milestones for the period from June 1, 1992, through May 31, 1993.[7] During this period, 16 out of 21 facilities missed milestones. For example, the Los Alamos National Laboratory missed 31 out of 42 milestones, and Rocky Flats missed 8 out of 36. The number of milestones due ranged from 1 at Weldon Springs to 42 at Los Alamos. At the Hanford site, activities for characterizing tank wastes have fallen a year behind schedule.

[5]Release sites are locations contaminated by releases of radioactive or hazardous waste. A single project can encompass hundreds of such sites.

[6]These represent nuclear facilities that have been decommissioned and now require decontamination. More such projects are anticipated as DOE further downsizes its nuclear production facilities.

[7]This represents the most recent period for which these data were made available to us from DOE during our review.

The delays in completing milestones varied from one facility to another and ranged from 14 days to 1,095 days. Over 90 percent of the missed milestones were delayed by 30 days or more. Furthermore, 8 out of the 16 facilities that missed milestones (Hanford, Mound, Brookhaven, Kansas City Plant, Fernald, Los Alamos, Lawrence Livermore and Rocky Flats) missed at least one milestone by 365 days or more.

DOE officials believe that their performance in meeting milestones has improved. In November 1994, DOE reported that it had missed 21 percent of all its milestones cumulative through the end of fiscal year 1994.[8]

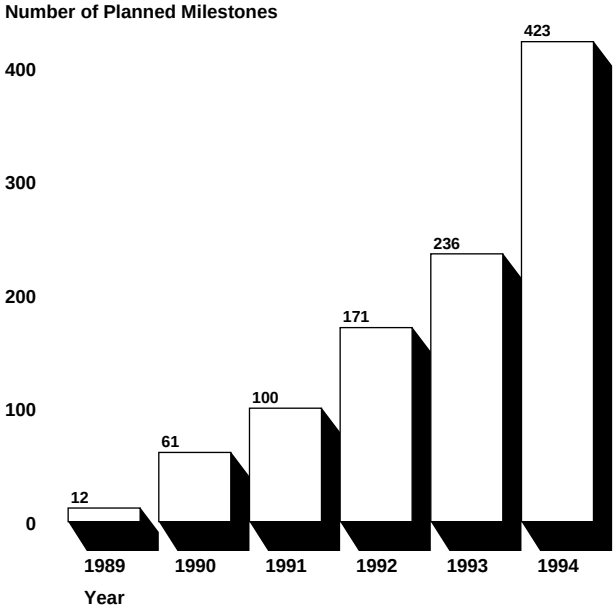
In commenting on a draft of this report, DOE officials also noted that although the Department has not completed all of its milestones on schedule, it has performed a number of interim actions that were not part of its agreements with regulators. These actions have advanced the physical cleanup at sites, reduced exposure to contaminants, or contained contaminants; however, they are not considered final actions. DOE reported that 118 interim actions were completed in fiscal year 1994 and another 100 are scheduled for completion in fiscal year 1995.

More, and More Complex, Milestones Will Come Due

In the coming years, the pace of milestones coming due will accelerate rapidly. From 1989 to 1994, the number of annual planned milestones increased over 18-fold—from 23 to 433. By the year 2019, DOE expects that number to exceed 2,000. Figure 2.1 shows the number of milestones due each year from 1989 to 1994. For the next few years, DOE's focus will remain on characterization activities, but by the turn of the century greater numbers of remedial actions are expected to come due. These remedial actions involve the design and construction of physical cleanup projects and are far more complicated and costly than the characterization activities preceding them.

[8]These data are reported from DOE's Progress Tracking System.

Figure 2.1: Enforceable Milestones Due, 1989-94



Source: GAO's presentation of DOE's data.

Slow Pace of Cleanup Has Caused Frustration

Both the Congress and regulators—the states and EPA—have expressed frustration over the pace of DOE's environmental restoration program. During the 103rd Congress, DOE's handling of various aspects of the program was criticized in both houses, and a conference committee report warned that funding for environmental projects would not be forthcoming forever.[9]

DOE acknowledges that its progress has been slow, but it is pursuing ways to accelerate its efforts. For example, at the Hanford Reservation—one of the most contaminated sites within the weapons complex—the Department is using "expedited response actions" (a type of interim action) at selected locations. According to DOE, this approach allows the Department and its contractors to reduce the amount of time needed for preparatory research before actual cleanups can begin. In addition, DOE is using an expedited site characterization process at Hanford that was first demonstrated by the Argonne National Laboratory in July 1993. This

[9]"Making Appropriations for Energy and Water Development for the Fiscal Year Ending September 30, 1994, and for Other Purposes," Fiscal Year 1994 Appropriations Conference Report (103-305) (Oct. 22, 1993).

process employs multiple technologies and a multidisciplinary team to produce high-quality data for decision-making.

Several Factors Limit Progress

Several factors affect the progress of DOE's cleanup program. DOE's problems are technically complicated because they involve both hazardous and radioactive wastes. In addition, DOE's sites present a wide range of risks. Because information about these risks is limited, calculating cumulative risks and planning site cleanups can be difficult.

We identified two other important issues that jeopardize DOE's progress in addressing sites: First, many of DOE's agreements with regulators are unrealistic; second, DOE's environmental management strategy is focused too much on setting priorities for individual sites and not enough on setting priorities for the weapons complex as a whole.[10] Chapters 3 and 4 discuss these problems.

Agency Comments and Our Evaluation

In commenting initially on a draft of this report, DOE maintained that GAO had overlooked "the significant number of accomplishments reflecting real world progress" that the Department's environmental restoration program had achieved. As noted in chapter 1, DOE provided us with a lengthy attachment in which it cited its accomplishments at individual sites. DOE also emphasized its completion of many interim actions and development of detailed performance measures for tracking its progress toward six strategic goals (discussed in ch. 4). In addition, DOE pointed out that the enforceable legal agreements under which it operates typically require sites to be characterized before remediation can begin. Finally, DOE attributed delays during the first 5 years of the program to "significant start-up activities and reorganization disruption" and stated that later years should be more productive.

We commend DOE for its accomplishments at individual sites and acknowledge that both the interim actions it has taken and the performance measures it has developed represent important steps in cleaning up the weapons complex. In addition, we recognize that DOE is required to characterize its waste sites as a first step in complying with many of its agreements. Nevertheless, DOE has not moved far beyond characterization, since 67 percent of its projects are in this phase. Moreover, we are concerned that DOE will experience further difficulty in

[10]We recently reported on the important role of improved technologies in cleaning up contaminated sites. See Management Changes Needed to Expand Use of Innovative Cleanup Technologies (GAO/RCED-94-205, Aug. 10, 1994).

meeting its commitments as the balance of its environmental restoration work shifts from characterization to cleanup and as both the costs and the technical complexity of its tasks increase. Proposed reductions in federal funding for environmental restoration will also affect DOE's ability to comply with the agreements.

DOE Entered Into Unrealistic Interagency Agreements

Progress in cleaning up the weapons complex, as measured by DOE's completion of milestones set forth in agreements with regulators, has been slow because many agreements have turned out to be unrealistic and changes have proved difficult and time-consuming to negotiate. Delays in completing technically complex milestones have created tensions with regulators, which DOE has tried to mitigate by emphasizing compliance with other milestones, some of which, in DOE's view, do not cost-effectively reduce the greatest risks to human health and the environment. Hence, DOE's emphasis on meeting milestones has discouraged a strategic focus at many sites. At a few sites, though, DOE and its regulators have renegotiated agreements and have developed a more integrated, collaborative, flexible approach that appears to have assisted them in devising cost-effective strategies for reducing the greatest environmental risks.

Unrealistic Agreements Have Roots in DOE's History

Until the late 1980s, DOE focused primarily on meeting military production schedules, giving only limited attention to compliance with environmental standards. As late as 1987, a state critic at a congressional hearing noted that "DOE's attitude toward compliance has been as bad as [that of] the worst private sector violators. . . . [While DOE] now pays lip service to some of the environmental laws, its compliance with those laws falls short of an acceptable standard."[11]

Responding to pressure from federal and state regulators and the public, DOE officials hastened to sign unrealistic cleanup agreements at several sites, including Rocky Flats and Hanford, two of the major facilities within the weapons complex. A former DOE under secretary recently acknowledged that DOE "got into the compliance agreements. . . because we had to stay in production to produce the requirements for the military." In this official's words, the Department was "leveraged to be responsive to the environment, safety, and health concern,"[12] and it entered into agreements without ensuring that it could meet either their funding requirements or their schedules. Meanwhile, DOE's regulators pressured DOE to sign agreements because they had no other means to ensure the Department's attention to environmental issues.

[11]Environmental Issues at Department of Energy Nuclear Facilities, statement by Anthony J. Celebrezze, Jr., Attorney General, state of Ohio, before the U.S. Senate, Committee on Governmental Affairs (Mar. 17, 1987).

[12]John C. Tuck, "Reflections on Tenure as the Under Secretary," Office of the Executive Secretariat, History Division, DOE (Jan. 17, 1993).

The Rocky Flats Agreement

According to DOE regional administrators responsible for Rocky Flats, political pressure and the fear of prosecution led the Department to sign a cleanup agreement for the plant before completing basic cost estimates and project schedules. In June 1989, FBI agents raided Rocky Flats and spent 3 weeks searching for evidence of deliberate violations of environmental laws. This raid—the first investigation of DOE's compliance with environmental laws at any weapons facility—lent credibility to the charges of environmental mismanagement that had been leveled against the facility since the early 1970s and instilled fears of being jailed in Rocky Flats officials as they completed negotiations for a CERCLA agreement in 1991. DOE officials told us they were "willing to give EPA anything it wanted." Nevertheless, they said, "the day we signed the [interagency agreement], any technical person would [have] know[n] we couldn't meet the milestones." The regulators, however, believed that DOE had signed the agreement in good faith and could, with proper management, meet the negotiated milestones. For further discussion of this issue, see the next section of this chapter.

The Rocky Flats officials who committed DOE to the ambitious cleanup schedule now believe that the agreement's biggest flaw is its failure to provide periodic opportunities for DOE and the regulators to formally reevaluate schedules and revise milestones as changes in site conditions or funding occur. The cleanup is now expected to take longer than the 10 years originally allotted for it, and, as of the summer of 1994, DOE had missed about one-fourth of the agreement's milestones.

DOE and the regulators have been renegotiating the Rocky Flats interagency cleanup agreement and have drawn up a draft agreement that provides for annual discussions of priorities among the parties and the public, as well as revisions of milestones in response to budget shifts, new technologies, experience, or other changes. The regulators believe that, through earlier and greater involvement in DOE's planning and scheduling, they can help ensure that milestones are as realistic as possible. However, in November 1994, EPA and state regulators suspended negotiations because they found DOE unresponsive to a number of their concerns, including the adequacy of baseline schedules, the disposition of plutonium, oversight authority, and the future of the site. Our discussions with regulators suggest that these concerns are being resolved.

The Hanford Agreement

According to DOE's former Environmental Restoration Assistant Manager, DOE entered into an unrealistic cleanup agreement at the Hanford

Reservation near Richland, Washington. This tri-party agreement—so called because it involved DOE, EPA, and the Washington State Department of Ecology—was signed in 1989 and was DOE's first cleanup agreement. It established hundreds of milestones, for both environmental restoration and tank waste remediation, which are to be completed over 30 years. DOE agreed to some milestones, such as removing radioactive tritium from groundwater, without knowing whether the tasks were technically feasible. The former DOE official told us that "There was not [then]—and still is not—[any] technology to accomplish this task. . . ." Other activities and schedules in the Hanford agreement have also turned out to be unrealistic. For example, technical complications delayed the completion of one milestone by more than 1,000 days and also postponed the performance of later milestones in the series.

Because DOE was unable to meet the milestones in the first tri-party agreement, the parties agreed to renegotiate the agreement. They completed their revisions in January 1994, after 9 months of negotiation. Among other things, the new agreement emphasizes setting aggressive schedules to deal with urgent risks, striving to lower the cost of the cleanup by $1 billion over the next 5 years, and creating new opportunities for public involvement. The regulators allowed DOE to delay some of its milestones in return for a commitment to act more aggressively to reduce the greatest safety risks. The new agreement reflects revised views about the relative seriousness of different waste problems and the realization that new technologies for treating waste are more difficult to develop than originally anticipated. The agreement has been praised by federal and state officials as well as some public interest groups.

However, even the revised milestones may not be realistic. In September 1994, the Washington State Department of Ecology expressed increasing concern over the pace of DOE's implementation of the tank waste remediation system. In addition, in early December 1994, the Defense Nuclear Facilities Safety Board wrote a letter to the Assistant Secretary for Environmental Management expressing the Board's concern that the Hanford high-level radioactive waste storage tank program "is in difficulty." The Board included a memorandum stating that "the high-level tank characterization program is so far behind schedule that either a large increase in resources or a new strategy requiring much less sampling and analysis will be needed. . . ."

Unrealistic Commitments Have Been Difficult to Change

DOE assumed, when it entered into environmental agreements, that it would be able to revise unrealistic milestones. Agreements contain provisions for revising schedules; hence, for DOE officials who described milestones as "best estimates, rather than accurate predictions," change was to be expected. Regulators, however, have often viewed agreements as less subject to change. At Hanford, for example, DOE saw the original tri-party agreement as a general framework for cleanup, while the state and EPA considered its milestones as enforceable. Thus, at many DOE sites, the process of changing an agreement can be long and difficult, according to both DOE officials and regulators with whom we spoke.

Changes either in the type or scope or in the timing of work to be performed require the approval of DOE's regulators. Thus, if DOE wishes to modify a negotiated activity, it is required to submit a technical justification to the regulators. According to both DOE and regulatory officials, such a justification is often rejected and has to be resubmitted several times before an agreement is reached. Similarly, regulators may refuse to reschedule activities unless they view the revised dates as acceptable. Again, a time-consuming exchange of documents may be required for DOE to obtain approval of a change.

Regulators vary in their willingness to consider changes to agreements. Generally, they will consider changes if they find DOE's technical justifications sound, but they also believe that continually negotiating milestones damages the integrity of their agreements. To maintain credibility with their constituencies, they may resist changes. Environmental officials from Washington, Colorado, South Carolina, Tennessee, and Ohio told us they would stand firm against any unwarranted changes to an agreement that would delay their schedule.

When DOE has constructive relationships with its regulators, disputes are resolved smoothly, but when its relationships are strained, comparable disputes can take significantly longer to resolve. According to some waste policy experts, having trusting relationships with regulators is one of the most important indicators of a well-managed cleanup operation. At Oak Ridge, for example, where a measure of trust has existed between DOE and its regulators, EPA was willing to consider any reasonable proposals for altering scheduled milestones when it found deficiencies in a remedial investigation report that DOE submitted. Acknowledging that DOE might not have anticipated the need for additional fieldwork and reports, EPA extended DOE's schedule. At Rocky Flats, however, where the relationship between DOE and its regulators has been more demanding, EPA and the

state of Colorado agreed to extend an initial deadline but not to postpone subsequent deadlines. Although the regulators viewed this approach as reasonable, given the extended period of time between milestones, DOE officials said that it forced them to spend time applying for extensions that should have been spent performing technical work. Whereas DOE maintained that it was unable to complete its milestones on time because of "budget constraints," regulators at Rocky Flats believed that DOE either did not request sufficient funding to meet its deadlines or did not efficiently manage the funding it received.

Reliance on Milestones Discourages Strategic Focus

When DOE has been unable to renegotiate or has not sought to change unrealistic agreements or milestones, it has sometimes focused more on compliance than on cleanup. It has spent scarce resources to demonstrate its willingness to meet its legal commitments even when its expenditures have not advanced its environmental goals.

At the Hanford Reservation, for example, DOE continued to modify a facility, known as B Plant, in order to meet an October 1993 milestone, even though DOE studies had consistently shown that the modification would not meet federal and departmental regulations. GAO had also concluded, as early as June 1991, that DOE's efforts were fruitless, yet DOE did not abandon the project until the spring of 1992. DOE estimated that the project would cost more than $600 million.[13]

At Rocky Flats, DOE also focused more on meeting milestones than on facilitating cleanups. When it found that it did not have sufficient funds to complete a costly, high-priority milestone on schedule, it decided to perform several less costly, low-priority milestones instead. Specifically, in March 1993, it developed work plans for several sites at Rocky Flats rather than complete the draft of an investigation/inspection report that was due as part of its interagency agreement with EPA and the state of Colorado. To complete the draft, it would have had to conduct expensive fieldwork to assess the extent to which soil and groundwater had been contaminated by the leakage of hazardous and radioactive materials from drums stored at the site during the 1950s and 1960s. According to a DOE manager at Rocky Flats, "We have been driven to maximize the number of milestones we meet." The regulators, however, were not satisfied with DOE's substitution of quantity for quality; they faulted DOE for mismanagement and recommended a penalty. According to the regulators, DOE unilaterally

[13]For more information on B Plant modifications see Nuclear Waste: Pretreatment Modifications at DOE Hanford's B Plant Should Be Stopped (GAO/RCED-91-165, June 12, 1991).

decided which milestones to meet and which to miss, without discussing priorities with them or acknowledging that it could not complete all of the milestones on schedule. "If DOE had discussed the problem with us, possibly we could have found a solution to the problem and possibly we could not have, but with DOE's approach we never had the opportunity to try," said a state regulator.

At 22 projects throughout the weapons complex, DOE has agreed to implement a groundwater remediation technique called "pump and treat." This technique—which involves pumping contaminated water out of the ground, treating it to remove hazardous and other constituents, and then discharging the treated water to the surface or injecting it back into the ground—is commonly a part of EPA and state groundwater cleanup strategies because it is often the only technique available for attempting to remove contamination from groundwater. Although it can prevent further degradation and return groundwater to beneficial uses, it is frequently viewed as an ineffective technology because its use is scheduled to continue at some sites for 30 years or more. Moreover, according to DOE, at many sites the technique does little or nothing to reduce risks to public health and safety. Over the lives of its projects, DOE expects the costs of using pump-and-treat techniques to exceed $500 million.

Activities at Savannah River Lack Strategic Focus

At Savannah River, DOE entered into agreements with the state of South Carolina and with EPA to perform cleanups required under both RCRA and CERCLA. DOE's implementation of these agreements—and DOE's relationships with the regulators—reflects the difficulty of carrying out cleanups efficiently when the parties have entered into agreements without fully understanding the technical complexity of the tasks involved, without providing adequately for change in response to technical or fiscal realities, and without concurring on key elements, such as the severity of the risk, the benefits of the negotiated remedy relative to the costs, or the actions needed to satisfy multiple legal requirements.

To comply with the terms of a 1992 RCRA permit, DOE agreed to address groundwater contamination associated with currently inactive seepage basins that had been contaminated by the Department's operations. The regulators gave DOE 3 years to develop an implementable solution. In the absence of a more appropriate cleanup technology, DOE agreed to conduct pump-and-treat operations. However, as DOE explained to the regulators, it was reluctant to proceed with an activity that, in its view, would have limited benefits and high costs. DOE estimated that this project would cost

over $32 million to construct, and it anticipated that the project would continue for 30 years or more, at an annual operating cost of $4 million to $6 million.

Subsequently, DOE determined from an interim assessment of risks at the site that the contaminated groundwater posed no imminent off-site risk and that any risk to persons at the site could be controlled without conducting pump-and-treat operations. DOE then proposed controlling access to the site and managing the contamination until a more effective remedy could be developed. The regulators rejected DOE's proposal, maintaining that DOE's assessment was based on faulty reasoning and a questionable interpretation of environmental models. Although DOE challenged the regulators' insistence on the pump-and-treat remedy for 2 years, it decided in 1994 to demonstrate its willingness to cooperate with the regulators by fully implementing the agreement.

At Savannah River, as at many other sites, DOE faces the challenge of coordinating the activities that are required under both RCRA and CERCLA.[14] Here, DOE is continuing the cleanup activities that it began to meet RCRA's requirements and is coordinating its performance of CERCLA's requirements with these ongoing efforts. Thus, in addition to conducting the pump-and-treat project required under the 1992 RCRA permit, DOE is preparing CERCLA documentation for the project and is expecting public comments on the documentation.

Elsewhere at Savannah River, a disagreement has arisen between DOE and its regulators over the need to prepare additional documentation—at an estimated cost of $33,000—to demonstrate that, in cleaning up a facility under RCRA, DOE also complied with requirements under CERCLA. Essentially, this documentation would modify paperwork prepared under RCRA to suit formats used under CERCLA; it would not entail additional cleanup work or disclose new information. Whereas South Carolina and EPA regional officials believe that DOE could use a simpler, less expensive approach to satisfy CERCLA's requirements, DOE officials at Savannah River believe that the documentation is necessary to complete the administrative record. Since over 200 other sites at Savannah River are awaiting cleanups under RCRA, DOE's approach, if extended to all of the cleanups, could prove costly.

[14]See Nuclear Cleanup: Difficulties in Coordinating Activities Under Two Environmental Laws (GAO/RCED-95-66, Dec. 22, 1994).

To expedite cleanups at Savannah River, DOE and its regulators have instituted a 3-year project planning process to coordinate activities with DOE's budget process. According to EPA regulators for the site, milestones and deliverables are negotiated annually on the basis of environmental priorities, DOE funding levels, and input from stakeholders. This approach may provide the flexibility and coordination that are needed to facilitate cleanups at the site.

Internal Review Identifies Areas for Improvement

Recently, EM undertook a three-phase review of enforceable agreement milestones that has, thus far, largely supported GAO's findings. The first phase showed that most "vulnerable" (likely to be missed) milestones were (1) study related, unrealistic, or not logistically implementable or (2) could be better coordinated with other programs. During the second phase, a "technical review team" of independent contractors analyzed vulnerable milestones at four weapons-complex facilities (Brookhaven National Laboratory, Lawrence Livermore National Laboratory, the Mound Plant, and the Savannah River Site) in the spring of 1994.[15] After analyzing 139 vulnerable milestones, the team observed that "milestones do not necessarily reflect an effective strategic approach to environmental restoration." According to the team, completing milestones becomes an end in itself rather than a tool for meeting environmental goals and requirements. In addition, "milestones act as drivers of the work that will be required rather than reflecting the most strategic approach to an environmental restoration program." The team further observed that DOE needs a strategy that sequences activities to maximize progress and use resources cost-effectively. Funding limitations were viewed as the primary cause for missing negotiated milestones and explained the frequent need to renegotiate. The team did not extrapolate its findings from the four facilities to the weapons complex as a whole; however, its results are consistent with our observations at other DOE sites.

As phase III of this effort, DOE is planning a pilot project to improve its approach to interagency agreements. This project will include work with EPA regional officials and state officials to develop a technical strategy for cleaning up a facility. Although the project was originally planned to include three sites recently added to the NPL, its scope was reduced to one site. At the time of our review, DOE had not obtained formal commitments from the relevant EPA regional office and state agency to participate in the pilot project or finalized detailed plans for it.

[15]Phase II Milestone Review: An Analysis of Four DOE Sites, final report by Project Performance Corp.; The Cadmus Group, Inc.; and CH2M Hill, Inc. (Apr. 1994).

Agreements Can Advance Cleanups

Although the progress of environmental cleanup has been limited at most facilities within DOE's weapons complex, the Idaho National Engineering Laboratory has completed more remediation milestones than any other facility. The geology of the site and the nature of the contamination have influenced this progress, but so, too, has the cleanup agreement. This agreement integrates federal and state goals and requirements, recognizes the need for change, and balances costs and benefits.

The Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory, signed in December 1991, is designed to serve as a single "road map" for all cleanup activities at the site. All parties have agreed to use the CERCLA process for cleanup, specifying that complying with CERCLA will satisfy RCRA and state hazardous waste cleanup requirements. The regulators and DOE told us that the intent of this integrated agreement is to allow the parties to select the best cleanup approach for each unit, regardless of statute.

The Idaho agreement is flexible. Its action plan states that no reasonable amount of investigation can resolve all uncertainty and that once remedial actions have been initiated, they must be allowed to change. The agreement encourages the timely selection of remedies, flexibility for remedial action, and the adoption of alternative solutions in response to new information discovered during investigations.

The Idaho agreement encourages the parties to consider the cost-effectiveness of remedies designed to reduce risks at sites. The accompanying action plan gives project managers the flexibility to prioritize and organize work so as to maximize the benefits that can be achieved with available funds. Furthermore, the document supports a "bias for action" through minimizing the duplication of analyses and documentation, expediting the cleanup process as much as possible, and providing the necessary flexibility to reach an early determination on a unit when there is sufficient information.

After the Idaho agreement went into effect, one of the first planned remedial investigations at the site was for the Test Reactor Area. This area houses test reactors and extensive support facilities for studying the effects of radiation on materials, fuels, and equipment. Sites within this area that were investigated included pits, tanks, rubble piles, ponds, cooling towers, wells, french drains, and spills. The U.S. Geological Survey had been collecting data on groundwater at the Idaho site since the 1950s, when the facility was put into operation. Although these data had not been

collected under the CERCLA agreement, the parties agreed that, because the data had been collected consistently for 40 years, they were useable along with data collected more recently under a previous RCRA consent order. The decision to use the available data eliminated the need for a work plan and further field data collection and analysis. As a result, a remedy was selected for the site about a year ahead of schedule.

Analysis of the data showed that groundwater and a percolation pond were contaminated. The parties considered a variety of remedies, ranging in estimated cost from about $6 million to more than $43 million, but decided, ultimately, that there was no need to remediate the groundwater. Because (1) DOE had previously reduced or eliminated the sources of contamination, (2) the levels of contamination were declining, and (3) no people were living in the area, the parties agreed to consolidate the contaminated sediments in the percolation pond and place a soil cap on top. According to the parties, the costs of implementing a groundwater remedy were not worth the possible benefits.

The parties' ability to reach a potentially controversial decision was attributed to the teamwork and bias for action articulated in the Idaho agreement. Particularly for the state, the decision was not easy to support because the public was concerned about the possible contamination of the aquifer, on which the agricultural community depends. To facilitate decision-making for all parties, both DOE and its regulators were trained in, and extensively reviewed, models and risk assessments for the site. According to all parties, the regulators' unusually extensive involvement in DOE's decision-making helped them to arrive at mutually satisfactory results, which they could then jointly present to the public.

Agency Comments and Our Evaluation

In its detailed comments on a draft of this report, DOE disagreed with our interpretation of the statement that "milestones do not necessarily reflect an effective strategic approach to environmental restoration," which we quoted from the independent contractors' Phase II Milestone Review. DOE indicated that "strategic" in this context referred to a site-specific rather than a national scheme. While the contractors may have derived their support for this statement from the four sites studied, we believe that the statement can also be applied to other sites within DOE's weapons complex. In addition, as we discuss in the next chapter, we believe that the statement can be applied across, as well as within, sites.

DOE suggested that our discussion of the groundwater remediation project at Savannah River was anecdotal. As we explained in the report, our discussion was based on the documentation we received not only from the DOE headquarters and field officials responsible for this project but also from the regulators at both EPA Region IV and the State of South Carolina's Department of Health and Environmental Control. We obtained information from correspondence between EPA and DOE and between the Department of Health and Environmental Control and DOE, from the baseline risk assessment, and from a wide range of studies, memorandums, and other documentation dating as far back as December 1990. In addition, regulatory officials who oversee this work, at both EPA and the state, reviewed the draft report and provided us with their comments, which we incorporated throughout the text. These regulatory officials' comments suggested that we had reasonably depicted the situation. According to DOE, "the GAO draft report seems to suggest there is no correct option" for cleaning up the groundwater at Savannah River. Our point in describing the contentious situation at this site was to illustrate the complications arising from differences between DOE and its regulators on interpretations of risk, analyses of costs and benefits, legal commitments, and jurisdictional issues. Our purpose was not to suggest "a correct option."

Finally, in commenting on the draft report's statement that cooperation among EPA, the state, and DOE at the Idaho site gave the three parties a decision that they could "take to the public with a united front," DOE said that GAO had portrayed these government agencies as giving the public a "hard sell." We disagree with this interpretation. In fact, the public's support in implementing the decision suggests that cooperation between the regulators and DOE can extend to the public as well.

Future Cleanup Progress Depends on a National Strategy

As the preceding chapters have shown, progress in cleaning up individual facilities has depended greatly on DOE's ability to negotiate realistic agreements with regulators. When technical difficulties have arisen or when DOE has been unable to either obtain or manage the funds needed to implement milestones on schedule, progress has faltered and tensions between DOE and its regulators have increased. Typically, renegotiation has then proved time-consuming and difficult, further delaying progress. But when DOE and its regulators have been able to coordinate commitments and devise cost-effective cleanup strategies, as they have at INEL, then progress has occurred.

Today, pressures on the federal budget are increasing, and funding for environmental restoration is becoming more difficult to obtain. At the same time, growing numbers of costly cleanup milestones are scheduled to fall due. As the gap widens between the costs of cleanup and the funds available for it, the need grows for DOE and its regulators to adopt a national risk-based cleanup strategy. Such a strategy would enable DOE and its regulators to set priorities across as well as within sites and create a framework for agreeing on remedies that are both effective and affordable. Such a strategy would likely require DOE and its regulators to renegotiate some agreements, deferring infeasible milestones until technological solutions could be found and postponing lower-priority milestones until more urgent risks could be addressed.

DOE has developed goals and is conducting studies as a basis for setting cleanup priorities and establishing a national cleanup strategy. In the past, DOE also tried to set priorities, but the systems it devised proved unworkable, in large part because they required considerable subjective judgment and were not explicitly linked to DOE's various agreements with EPA and states. If DOE can apply the lessons learned in effectively negotiating priorities at individual facilities to the weapons complex as a whole, it may be more successful now than it was in the past. But DOE will again be dealing with state and regional regulators whose perspectives and objectives may not extend to the nation as a whole. And regulators who have found DOE uncooperative in the past may be inclined to view national priority-setting as an attempt to circumvent existing commitments. In short, competing priorities and questions about DOE's credibility may again impede efforts to establish a national cleanup agenda, and an alternative approach may be required to achieve progress.

DOE Has Begun to Develop a Cleanup Strategy

As shown in table 4.1, DOE has developed six goals that, along with a series of operational approaches and performance measures, make up its "national strategy." The first two goals—managing and eliminating environmental risks and removing threats to human health and safety—direct DOE toward a risk-based strategy. The third goal, calling for managerial and financial control, is consistent with our recommendations (largely presented in other reports) that DOE improve its contract management. It is also consistent with the need (discussed in this report) to develop cost-effective solutions to environmental problems. The fourth goal, to become more outcome-oriented, should help redirect DOE's emphasis to give managers greater incentive to focus on achieving environmental results. The importance of the fifth goal—to develop technological solutions to environmental problems—has been demonstrated in this report's discussions of issues, such as groundwater contamination, that may pose significant health risks but currently have few satisfactory technological remedies. The final goal, calling for the development of strong partnerships between DOE and its stakeholders, is critical if DOE is to overcome its history of adversarial relationships with regulators and the public and establish sufficient credibility to set national priorities and negotiate mutually acceptable agreements.

Table 4.1: DOE's Environmental Management Goals

Goal number	Goal description
1	Manage and eliminate the urgent risks and threats in the DOE system.
2	Provide a safe workplace that is free from fatalities and serious accidents and continuously reduce injuries and adverse health effects.
3	Change the system so that it is under control managerially and financially.
4	Be more outcome-oriented.
5	Focus technology development on major environmental management issues while involving the best talent in DOE and in the national science and engineering communities.
6	Develop strong partnerships between DOE and its stakeholders.

Source: DOE.

DOE is conducting studies on a number of fronts to support its national strategy. These studies should provide the Department with information

about the resources needed to meet its legal commitments, the health and safety concerns associated with spent nuclear fuel, and the occupational and environmental risks found at its sites. For example, the Office of Environmental Management's Strategic Planning and Analysis Office, established in the spring of 1994, is developing a total program cost estimate, called the "Baseline Environmental Management Report." This report, which is due to be completed in March 1995, will systematically analyze the potential life-cycle costs of meeting all of the Department's existing legal commitments, as well as of addressing risks posed by other hazardous and radioactive waste and materials within the DOE system.

In addition, DOE has worked with state and EPA regulators to develop draft mixed waste site treatment plans identifying how individual sites will treat mixed hazardous and low-level radioactive wastes. DOE also promises a "national mixed waste treatment strategy" in 1995, which will be based on these site-specific plans. DOE created the Spent Nuclear Fuel program in 1994 to integrate its existing spent nuclear fuel activities and improve its oversight and control. Finally, the Office of Integrated Risk Management is conducting a "risk evaluation program" to study human health and environmental risks, including risks to workers, that exist at and around facilities. This evaluation program will provide a mechanism for systematically assessing hazards to health and the environment.

DOE's Efforts to Date Have Limitations

The program goals and analytical studies that form DOE's national strategy should provide the Department with direction and information for improving the efficiency and effectiveness of cleanups at individual sites. The studies should also generate some of the data needed to compare risks within sites and begin to establish priorities among them. However, DOE has not yet taken steps to compare risks across sites or to involve regulators and the public in its efforts to set national cleanup priorities.

DOE's previous efforts to set cleanup priorities received much criticism. In June 1986, DOE's Environment, Safety, and Health organization initiated a 3-year, $60 million environmental survey to identify and prioritize environmental problems in and around DOE's operating facilities using the Multimedia Environmental Pollutant Assessment System (MEPAS). This system uses models to show how contaminants could be released into the environment, how they could move through environmental media (e.g., soil, water, air) to humans, and how they could pose risks to humans. The Natural Resources Defense Council criticized MEPAS for failing to consider multiple contaminants or to identify the "most exposed individual," and it

criticized DOE for failing to involve the public in the development of MEPAS. In July 1989, DOE's Inspector General reported inadequate documentation for the environmental findings and unsubstantiated management decisions for about 15 percent of the survey's findings.

DOE introduced another priority-setting effort in EM's 1990 5-year plan. This four-level system proposed to allocate funds to environmental restoration and waste management activities in the following order:

- Activities necessary to prevent near-term adverse impacts to workers, the public, or the environment.
- Activities required to meet the terms of agreements between DOE and local, state, and federal agencies.
- Activities required for compliance with external regulations but not included in priority 1 or priority 2.
- Activities that are not required by regulation but would be desirable.

The Office of Technology Assessment reported that although most of DOE's activities fell into some portion of the first two categories, there was "little or no guidance for ranking activities within those major categories (or indeed any category)." According to a National Research Council report, the four-priority system was recognized as an interim approach to establishing priorities for future environmental restoration activities.

Additionally, DOE began developing a risk-based priority-setting system for its environmental restoration program budget in consultation with interested parties. The purpose of this system was to provide a "formal analytical decision-aiding tool addressing health and safety risks as well as social, technical, economic, and policy issues." A Technical Review Group asked by DOE for its evaluation of the system concluded in a 1991 report that "it has major limitations in what it can accomplish even with perfect input" and while it "can play an important role in ordering priorities . . . it is inappropriate for determining the budget for environmental restoration." The Advisory Committee on Nuclear Facility Safety further rejected the system, concluding that it "does not provide a national ranking of cases at all DOE installations" and that the "methodology relies extensively on expert opinion to substitute for the lack of data and analysis." Following these criticisms, DOE suspended all work on this system in 1992.

DOE is now conducting a "qualitative evaluation" of the risks and public concerns arising from conditions covered by compliance agreements. According to DOE officials responsible for this effort, it uses existing

sources of information on individual sites to identify (1) public concerns, (2) existing risks, and (3) legal and other commitments made with regulators. DOE expects to publish this information in a June 1995 report to the Congress. And DOE expects this report to provide another "baseline" of information about existing risks. Ultimately, DOE expects to use these baselines to develop a framework for environmental management decision-making that it believes will enable it to balance competing cleanup requirements with limited federal funds.

By presenting the results of its information-gathering efforts to stakeholders at individual sites and seeking their participation in assessing these results, DOE might be able to bolster its credibility with stakeholders and lay the foundation for working relationships that could ultimately advance its priority-setting agenda.

As DOE has found from past efforts, developing a cleanup strategy based on national priorities is a complicated process. The Advisory Committee on Nuclear Facility Safety recommended in November 1991 that the Department set priorities for cleanup on the basis of land-use plans, designating which parts of DOE sites might eventually be released for unrestricted use, which parts might be released for restricted use, and which parts might never be released for any purpose. The Committee added that "taxpayers cannot afford to return all of DOE's contaminated land to pristine conditions." EPA suggested that priority setting can be influenced by factors such as the effects of wastes on the environment and human health, the anticipated effect of remediation on economic development, considerations of environmental justice, the impact of delaying action on the environment, the importance of preserving historical and cultural resources, and the attainment of geographic equity in the distribution of resources for cleanups.

As DOE moves from theory to application—from developing a national cleanup strategy to implementing that strategy at individual facilities—it needs to retain its stakeholders' involvement. Otherwise, stakeholders may view the strategy as an attempt to circumvent existing agreements. Existing forums, designed to bring DOE together with stakeholders, are available to facilitate the implementation of a national strategy. For example, Site Specific Advisory Boards have been established to bring DOE together with EPA, states, and localities, and a Federal Environmental Restoration Dialogue Committee already exists. According to regulators, these groups have a historical understanding of DOE's missions and

environmental liabilities and could significantly assist the Department in prioritizing and executing cleanups.

DOE May Need Help in Setting National Priorities

If DOE is not able to develop strong partnerships with stakeholders and persuade them both (1) to give higher priority to national than to local, state, or regional priorities and (2) to overcome their distrust of DOE, then DOE may need assistance in establishing a national cleanup agenda. Several alternative approaches to managing the cleanup have been suggested, including the following:

- The Office of Management and Budget, in congressional testimony by its deputy director, said that the federal government must develop a comprehensive governmentwide strategy that is based on projected future land use, risk assessment, and cost-benefit estimation. Such a strategy would involve multiple agencies—such as the Department of Defense and the Department of the Interior, as well as DOE—and would set priorities for cleanup across agency lines.
- Some environmentalists have said privately that EPA should not only oversee but also directly manage cleanups at DOE installations and, perhaps, at other federal sites.
- Both the Office of Technology Assessment and the former chief of DOE's cleanup program have argued that DOE, acting alone, cannot make progress in cleaning up the weapons complex. Both urged the creation of a separate entity to manage important aspects of the cleanup. The Office recommended the establishment of a new organization to direct and coordinate risk and health studies; the former official believed a new government corporation with continuity of leadership and direction could more effectively manage federal facility cleanups.

Creating a separate entity to manage DOE's and/or all of the federal government's cleanups could have both advantages and disadvantages. Such an entity might be able to target resources effectively across all agencies and achieve certain efficiencies (e.g., in contracting and technology development). In addition, such an entity could allow more private-sector participation and could be designed to respond more rapidly than a federal agency to changing market conditions. Precedents for public-private partnerships have existed since the 18th century, when colonial legislatures first granted private corporations special privileges to pursue objectives deemed to be in the public interest. "Government corporations" have also been created with both public and private financing. Recently, for example, DOE and the U.S. Enrichment

Corporation restructured the federally owned uranium enrichment enterprise to allow more private-sector participation. If organized and managed soundly, these entities, whose operating responsibility is set by the Congress and the administration, can be valuable tools of modern government.

The potential benefits of creating a separate entity to manage federal facility cleanups need to be balanced against the possible costs, including the following:

- Organizing and funding a new agency would require start-up time and be likely to invite opposition from those who are reluctant to create a new bureaucracy, especially when the federal budget is running a deficit.
- Developing the legislation to authorize the establishment of a government corporation would involve the Congress and the administration in time-consuming discussions about the corporation's accountability, budgeting, personnel, and relations with government agencies.
- Creating a new bureaucracy would lead inevitably to the loss of momentum gained by the agencies that were formerly responsible for the cleanups.
- Removing the responsibility for cleanup from the federal agencies that first created the environmental problems might diminish the agencies' resolve to conduct aggressive ongoing waste management.

Many other issues would have to be considered before a separate entity or alternative cleanup structure could be established. But unless DOE is able to renegotiate its unrealistic agreements—with or without a national strategy—then the Congress may have to consider alternatives to the present cleanup structure.

In 1989, the House Committee on Energy and Commerce proposed that a national commission be established to recommend to the President and the Congress (1) a process for setting national priorities for environmental remediation activities at DOE's nuclear facilities and (2) sources and methods of funding those activities, among other things. At that time, we testified that "information and recommendations developed by the commission could help to clarify issues and form the basis for a national consensus in developing a comprehensive approach to cleaning up DOE's facilities."[16]

[16]Enormous Modernization and Cleanup Problems in the Nuclear Weapons Complex (GAO/T-RCED-89-11, Feb. 23, 1989).

Conclusions

Cleaning up contamination at DOE's facilities will not be easy because the risks to public health and the environment are large, the solutions to some problems are as yet unknown, the relationships between DOE and its stakeholders are often strained, and the gaps between the costs of the cleanups and the funds available for them are wide. The Congress has warned DOE that future funding levels may not meet all of the Department's existing commitments and that risk-based priorities should be established for cleanups.

To its credit, DOE has begun to collect the data needed to evaluate and compare risks at each site and to identify milestones that may require renegotiation. Using these data, DOE and its stakeholders can begin to balance environmental risks with available cleanup resources across sites. Although DOE's past efforts to reach agreement with regulators and the public on nationwide priorities have not succeeded, recent progress in forging working relationships with stakeholders and accomplishing environmental goals at some sites suggest some opportunity for success in the future.

If DOE cannot renegotiate unrealistic milestones and attain a higher level of progress, alternatives to the present cleanup program may have to be considered. Both the Office of Technology Assessment and the former chief of DOE's cleanup program have argued that DOE alone cannot make progress in cleaning up the weapons complex. GAO previously testified that a separate commission could help DOE develop a more comprehensive process for setting national priorities.

Recommendations

GAO recommends that the Secretary of Energy (1) set national priorities for cleaning up its contaminated sites using data gathered during the Department's ongoing risk evaluation as a starting point and (2) initiate discussions with regulators to renegotiate milestones that no longer reflect national priorities.

Agency Comments and Our Evaluation

In responding initially to a draft of this report, DOE said that it believed its internal efforts represented an appropriate national strategy for addressing environmental needs within the weapons complex and that a number of "impediments" made GAO's approach "unworkable." These included the significant changes to CERCLA that would be necessary, the lack of reliable risk data on which to base a national priority scheme, and the need to

ensure that decisions are broadly based, reflecting not only DOE's priorities but also those of regulators and other stakeholders.

We believe that our recommendation to set national priorities remains valid. Given expected budgetary shortfalls, DOE needs a process for allocating limited funds among sites. Currently, DOE does not compare the risks at one site with those at another. We believe that DOE can allocate its cleanup budget effectively only if it has current information for comparing risks across sites.

Following the administration's recent announcement of changes in budgetary priorities, DOE advised us, in a second letter, that it would be seeking to renegotiate milestones in existing agreements as we recommended. DOE also acknowledged that it would need to develop the kind of risk information "necessary to make tough tradeoffs among many compelling environmental, safety, and health problems."

Comments From the Department of Energy

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

Department of Energy
Washington, DC 20585
December 28, 1994

Mr. Victor Rezendes
Director, Energy and Science Issues Resources
Community and Economic Development
U.S. General Accounting Office
441 G Street, NW
Suite 1842
Washington, D.C. 20548

Dear Mr. Rezendes:

See comment 1.

On December 5, 1994, I provided you with comments on your draft report, "Department of Energy: National Strategy Needed for Environmental Cleanup." In those comments I concluded, essentially, that such a national risk-based priority setting system was as desirable as it was impractical. Certainly an analytical tool that objectively compared risk among sites could inform the allocation of budgets between sites and would "rationalize" the Environmental Management (EM) program. Unfortunately, limitations on the science of risk assessment, lack of adequate data, and imperatives of binding legal agreements with states reduce the practicality of such a "top down" system. Nonetheless, we have long known that we would need to plan for reduced budgets that are inadequate to meet our compliance agreements.

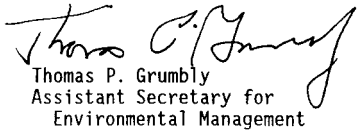
Since then, the Administration has proposed a five year budget for the Department of Energy that further reduces the outyear budget targets for the EM program. In response to your offer, I am providing these additional comments in light of those changes.

Prior to the recently announced budget cuts, we expected that following our strategic plan, improving efficiency and selectively renegotiating agreements as needed might be sufficient to make up the anticipated budget shortfall. Now, it is clear that the Administration's new budget cuts cannot be met through these measures alone. We believe that to accommodate these budget shortfalls some statutory changes may be needed in order to change the way we implement our program - especially the environmental restoration portion, which is expected to grow significantly. For example, the Administration recommended changes in the Superfund law last year that would have made cleanups faster and cheaper. These changes are absolutely essential to achieve essential cost savings. We will not, as the enclosed letter to The New York Times states, be proposing legislative changes to the Federal Facilities Compliance Act of 1992. However, we will need to renegotiate compliance agreements on a wide-spread basis, to the extent that our efficiency improvements fall short.

Moreover, while we continue to address our urgent risks, we will be redoubling our efforts to develop the kind of risk information necessary to make the tough tradeoffs among many compelling environmental, safety and health problems. We must look more critically at how we do business and think boldly about the changes we must make to save the billions of dollars required by these cuts. These cuts will force us to seek changes in existing compliance agreements as you suggested and to consider seriously possible legislative changes that will ensure that our resources are targeted at the highest risks in our waste management and environmental restoration program. Our cleanup budget will need to be built with the help of regulators and stakeholders to focus on activities that achieve the greatest risk prevention and risk reduction per dollar spent. These steps will bring us closer to the type of "national strategy" outlined in your draft report.

We hope that these additional comments are helpful and that you will consider the impact of the recent proposed Administration budget cuts on the EM program as you prepare your final report. Please do not hesitate to call on me or James D. Werner, (202) 586-9280, of my staff if you have any questions or require additional information.

Sincerely,



Thomas P. Grumbly
Assistant Secretary for
Environmental Management

Enclosure

Department of Energy
Washington, DC 20585

DEC 0 5 1994

Mr. Victor Rezendes
Director, Energy and Science Issues
Resources, Community and Economic Development
U.S. General Accounting Office
441 G Street, NW
Suite 1842
Washington, D.C. 20548

Dear Mr. Rezendes:

I am pleased to provide you with comments on your draft report, "Department of Energy: National Strategy Needed for Environmental Cleanup." Your draft report offers a number of very useful observations. In particular, you correctly pointed out that, for that portion of our program covered by enforceable milestones, the technical feasibility and the cost of meeting those milestone requirements was not adequately considered prior to signing up to these obligations. This is exactly right. We have recognized this problem and have already successfully renegotiated a number of agreements and are in the process of negotiating others. You also point out the need to address the worst risk first. We have recognized this problem and changed funding priorities to address the most urgent risks, whether or not they are covered by milestones. In addition, we have begun a major effort to characterize the risks at our sites.

See comment 2.

We have three general concerns about the draft report. First, the draft report fails to consider the significant number of accomplishments reflecting real world progress since your draft report research was completed. I would like to make my staff available so we can properly explain the great mass of additional information that has become available since you completed the research on your draft report. In addition, we have enclosed some summary information about this progress and would be pleased to provide you with suggested report language to reflect this progress.

See comment 3.

Second, the draft report incorrectly generalizes by describing the Environmental Management program as the "Cleanup" program. This is more than a semantic matter. The draft report appears to draw a series of conclusions based on a very simplistic notion about the nature of the Environmental Management program. We believe that a more thorough understanding by General Accounting Office of the complexity of the Environmental Management program, and the nature of our funding sources, would change many of the conclusions in the report.

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See comment 4.

Third, the draft report implies that a "national strategy" is needed for the Environmental Management program. We agree. Unfortunately, the draft GAO report fails to note the national strategy that is already in place. In light of your attempt to analyze the value of a "national strategy," it is disappointing that you never mentioned our existing strategic plan, or my six strategic goals in your draft report, or interviewed our director of Strategic Planning and Analysis in its preparation. I understand that your staff has already had a constructive introductory interview with our Strategic Planning director and trust that he will avail himself as you complete your project. Because of this apparent lack of cognizance of our ongoing national strategy, the GAO attempted to recommend a national strategy that is demonstrably unworkable. The GAO draft report only vaguely acknowledges the previous attempts by the Department to force a national "cleanup" strategy on its stakeholders. Our current strategy engages regulators and the public in dialogue in such vital areas as environmental remediation and waste management, and has in turn shown that the public can be prudent with taxpayer dollars and not choose the most expensive remedy at our sites. For example, at the Hanford, Washington site, a broad cross section of stakeholders (including state officials, Indian tribes and non-governmental organizations) agreed on a set of "values" to guide future land use at the site, which indicated retaining the site's 200 Area as a waste storage zone. Our side-by-side analysis and a brief summary of our national strategy provides more detail of our efforts to develop a meaningful national strategy.

See comment 5.

Additionally, enclosed are a variety of documents that will be useful to you as you revise the draft report. As you requested, we prepared a side-by-side analysis and comment document, which provides more than 40 specific corrections of factual errors and refers to several enclosed documents.

Thank you for the opportunity to comment on your draft report. We hope that our input is helpful to you as you prepare the final report. We regard the level of analysis that the GAO is capable of as extraordinarily valuable toward developing a more effective Environmental Management program. Please do not hesitate to call me or James D. Werner, (202) 586-9280 of my staff if you have any questions or require additional information.

Sincerely,

Thomas P. Grumbly
Assistant Secretary for
Environmental Management

Enclosures

The following are GAO's comments on the Department of Energy's (DOE) letters dated December 28, 1994, and December 5, 1994. DOE's December 5, 1994, letter also included an attachment with extensive, detailed comments. Because of its volume, this attachment has not been reproduced in this appendix; however, responses to DOE's comments, including comments in the attachment, appear throughout the report and, as relevant, at the end of individual chapters.

GAO's Comments

1. We disagree that a national strategy incorporating risk as one of its criteria for decision-making is impractical. Although we recognize that such a strategy requires difficult choices and introduces controversy into a complicated decision-making process, it is necessary, given expected shortfalls in the federal budget. As F. Henry Habicht, former deputy administrator of the U.S. Environmental Protection Agency said at a 1992 conference about risk-based national environmental priorities, ". . . my experience at EPA persuades me that comparative risk assessment—rough as it is—must be important in shaping a future environmental policy that is principled and cognizant of the realities of the fiscal world." Because the success of risk-based priority-setting depends on the systematic collection of meaningful data, it is important to build a process for incorporating information about comparative risks and stakeholders' concerns into decisions about how resources should be allocated among sites.

2. In chapters 1 and 4, we included more recent information on the range of DOE's activities, and in chapter 2 we expanded our discussion of DOE's progress, citing the number of interim actions DOE has completed.

3. We appreciate the complexity of the Environmental Management program and have included more discussion of its parts in our report. In addition, we include in our discussion of "cleanup" activities that extend beyond the environmental restoration component of EM's responsibilities.

4. We describe the Office of Environmental Management's existing "national strategy" in chapter 4 of the report. We acknowledge that the program goals and analytical studies that make up DOE's national strategy may provide the Department with direction and information for improving the efficiency and effectiveness of its cleanup program on a site-by-site basis. However, in our view, DOE's current approach does not constitute a sound basis for setting priorities across sites. As DOE begins to renegotiate its compliance agreements to meet current budget realities, it will need a

strategy that allows it to allocate resources across all sites, not just within particular sites.

5.The report now contains supplemental information provided by DOE.

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