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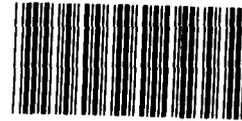
United States General Accounting Office

Report to the Chairman, Subcommittee
on Oversight and Investigations,
Committee on Energy and Commerce,
House of Representatives

August 1992

DOE MANAGEMENT

Impediments to Environmental Restoration Management Contracting



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**Resources, Community, and
Economic Development Division**

B-249446

August 14, 1992

The Honorable John D. Dingell
Chairman, Subcommittee on Oversight
and Investigations
Committee on Energy and Commerce
House of Representatives

Dear Mr. Chairman:

You requested that we evaluate the Department of Energy's (DOE) proposed new contracting approach for cleaning up contamination at the nation's nuclear weapons sites. This new approach would utilize Environmental Restoration Management Contractors (ERMC), who would be responsible solely for environmental cleanup of DOE's nuclear weapons facilities. DOE's existing Management and Operations (M&O) contractors would continue to be responsible for operating and maintaining these facilities. DOE has issued requests for proposals for pilot tests of the ERMC concept that would last for at least 5 years at the agency's Fernald, Ohio, and Hanford, Washington, sites. The Fernald pilot test is scheduled to begin in September 1992, while the Hanford pilot test is slated to start in March 1993. You expressed the view that it is essential that DOE's new ERMC approach not repeat the problems DOE has had in overseeing its M&O contractors.¹ Consequently, we agreed with your office to (1) identify the goals DOE has established for the ERMCs and any impediments to achieving these goals, and (2) determine how prepared DOE is to implement the pilot tests at Fernald and Hanford.

Results in Brief

DOE has set several important goals for the ERMC approach, including improving contractor performance, increasing management control, and lowering costs. However, it may be difficult for the ERMCs to achieve these goals. For example, through the ERMCs, DOE seeks to improve contractor performance by bringing in more cleanup expertise from outside the DOE complex. However, DOE officials tasked with the implementation of the pilot tests have stated that experience in cleaning up the highly radioactive wastes that characterize much of DOE's problem is not widespread, and such experience mostly resides with DOE's existing contractors. Moreover, increased management control may be difficult—especially at Hanford—where cleanup responsibilities will be divided among three

¹For more information, see *Energy Management: Vulnerability of DOE's Contracting to Waste, Fraud, Abuse, and Mismanagement* (GAO/RCED-92-101, Apr. 10, 1992).

parties—the ERMC, the existing M&O contractor, and the U.S. Army Corps of Engineers.

Finally, DOE expects to control costs in part by reducing labor costs. However, both ERMC proposals have provisions that the sites' labor rates will not change. In addition, both contractors in the pilot tests will be required to hire as many of the existing M&O staff members—at current salary and benefit levels—as the contractors can effectively employ.

Given these uncertainties, evaluation becomes an increasingly important component in implementing the 5-year pilot tests. However, DOE has not established either final criteria for measuring the success of the pilot tests or timetables for evaluation efforts. Furthermore, DOE will be required to strengthen its site resources to implement the pilot tests, but providing enough DOE site personnel and training the staff to oversee the ERMC pilot tests have both received limited management attention as DOE has focused its efforts on the selection of the contractors.

Background

In 1989, DOE set a 30-year goal for cleaning up the nation's nuclear weapons sites.² This cleanup is estimated to cost more than \$160 billion. The environmental restoration portion of DOE's effort is projected to cost about \$9.4 billion for fiscal years 1993-97, with \$1.8 billion requested for fiscal year 1993. The waste management portion is expected to cost \$16.8 billion during fiscal years 1993-97, with \$3.1 billion requested for fiscal year 1993.

DOE's Assistant Secretary for Environmental Restoration and Waste Management (DOE-EM) is responsible for managing and planning the agency's cleanup. The Assistant Secretary's responsibilities include managing Fernald and Hanford, the only two DOE sites that now have a primary mission of environmental restoration and waste management. The remaining sites, depending on their main mission, report to other Assistant Secretaries.

The Fernald site, although only about 1.6 square miles, could cost more than \$10 billion to clean up, according to preliminary DOE estimates. Located about 20 miles from Cincinnati, the site produced uranium metals

²Besides Hanford and Fernald, the principal sites in the weapons complex include the Savannah River Site, the Idaho National Engineering Laboratory, the Rocky Flats Plant, the Oak Ridge Reservation, the Mound Plant, the Pinellas Plant, the Kansas City Plant, the Pantex Plant, the Nevada Test Site, the Waste Isolation Pilot Plant, and the national laboratories, Los Alamos, Sandia, and Lawrence-Livermore.

and materials for other DOE facilities. Production ceased in 1989. Fernald's environmental problems include radioactivity that has leached into the groundwater and has been carried off the site by rainwater runoff. The site has a consent agreement with the Environmental Protection Agency (EPA) and the state of Ohio to clean up the contamination problems caused by mixed and transuranic wastes.³ However, this cleanup has lagged behind the schedule set for it in the 1990 consent agreement, as amended.

Hanford covers 560 square miles in southeastern Washington. Cleaning up Hanford could cost up to \$100 billion, according to site officials. The site produced plutonium for atomic weapons between 1943 and 1987, when production ceased. An estimated 5 billion cubic yards of solid and dilute liquid wastes, including radioactive wastes, hazardous substances, and mixed wastes, have been disposed of at Hanford. Radioactive and hazardous wastes from various operations have been found in groundwater plumes totaling about 200 square miles. Contamination from these plumes has reached the Columbia River, adjacent to the site. An agreement between EPA, DOE, and the Washington State Department of Ecology guides the cleanup of the site. Commonly known as the Tri-Party Agreement, it set a goal of finishing the site cleanup by 2018. But the cleanup has lagged behind the schedule set in the agreement.

The Environmental Restoration Management Contractor Proposal

In February 1990, in response to concerns that the existing M&Os did not have adequate incentives to reduce cleanup costs and the public perception that the M&Os helped create DOE's environmental problems, DOE created the Alternate Contracting Task Force. The Task Force, which consisted of personnel from DOE headquarters and field offices, reviewed options for contracting for the environmental restoration. The Task Force did not reach agreement on changing the existing contracting approach because some field personnel were concerned about possibly disrupting ongoing operations. However, DOE-EM decided to test the ERM concept, one of the options the Task Force considered. The ERM concept called for a management contractor, experienced in environmental restoration, to focus solely on the environmental restoration of the site, subcontracting all but the management and oversight of the cleanup. DOE-EM management officials said they felt improvements were needed, and so they proposed the changes despite the Task Force's lack of consensus.

³Mixed wastes are wastes containing both radioactive and hazardous wastes. Transuranic wastes are wastes having radionuclides with an atomic number greater than that of uranium, with a half-life of more than 20 years, and in concentrations greater than 100 nanocuries per gram of waste.

DOE-EM has issued requests for proposals for pilot tests of the ERM concept at Fernald and Hanford. Under the proposals, the ERM would

- take over the management of the environmental restoration from the existing M&O contractor;
- be responsible for preparing studies of the areas needing cleanup and for identifying, evaluating, and aiding DOE in selecting cleanup options that meet legal cleanup requirements; and
- manage the actual cleanup through subcontractors.

However, the proposal for Fernald also requires the ERM to assume some existing M&O responsibilities, such as operating the site and providing site security and waste management. At Hanford, the ERM is to be responsible for environmental remediation and for the decommissioning and decontamination of surplus facilities, but it will not be responsible for waste management or other operational activities.

The planned term of the Fernald contract is 5 years, starting in December 1992 after a 3-month transition period scheduled to begin in September 1992. During the transition period, the ERM will share responsibility for the site with the existing contractor; it will assume full responsibility for the site after the transition period. The Hanford contract, also planned for 5 years, will start in July 1993 after a 4-month transition period scheduled to begin in March 1993. As proposed, both contracts will have provisions for an optional 3-year extension at DOE's option and will be cost-plus-award-fee contracts.⁴ The Fernald environmental restoration contract is expected to cost about \$1.9 billion for 5 years; environmental restoration at Hanford is expected to cost about \$779 million for the same term.

As of May 1992, the Deputy Assistant Secretary for Environmental Restoration told us DOE has no plans to implement the ERM concept at any other DOE sites. However, the Deputy Assistant Secretary for Environmental Restoration has mentioned the Rocky Flats Plant as a potential candidate for expansion of the concept.

⁴A cost-plus-award-fee contract compensates the contractor for costs incurred and provides an additional fee contingent on the quality of the contractor's performance.

Goals Set for ERM Concept May Be Difficult to Achieve

DOE has made the ERM concept a central element in its environmental restoration plans. More specifically, the goals set for the ERM include bringing into DOE more contractors that have expertise in cleaning up sites under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).⁵ The goals also include improving management control of the environmental restoration program, reducing cleanup costs, and facilitating a more timely restoration of the sites. However, it may be difficult for DOE to achieve these results with the ERM concept.

Availability of Additional Expertise Is Uncertain

DOE has a unique need for contractors who can deal with highly radioactive wastes, and this type of expertise may not be readily available among the contractors with RCRA/CERCLA expertise that DOE wants to employ. During its deliberations, the Alternate Contracting Task Force concluded that most potential ERMCS would not have experience with mixed and radioactive wastes. Similar concerns were expressed to us during our review. A DOE management official at Hanford said M&O contractors are currently knowledgeable about the disposal of mixed and radioactive wastes because DOE had invested considerable time and effort to familiarize the contractors with disposal requirements. The official said these skills are not generally available outside the DOE/M&O community. The EPA project manager at Hanford said little experience in DOE's unique cleanup problems was available among other RCRA/CERCLA contractors.

DOE's expectation that it will bring in more expertise is not consistent with its own statements and statements of others that a shortage of trained environmental remediation personnel exists. For example, in its most recent 5-year environmental restoration plan,⁶ DOE pointed out a shortage of trained personnel for managing environmental restoration. Shortages have also been reported by the Office of Technology Assessment⁷ and DOE's Advisory Committee on Nuclear Facility Safety.⁸ The National Constructors Association, in comments on the original ERM proposal, stated that "DOE,

⁵CERCLA deals with the cleanup of inactive waste sites. RCRA involves the management and cleanup of active waste sites.

⁶The Five-Year Environmental Restoration and Waste Management Plan, issued in August 1991, is the main planning tool for DOE and others to shape and control the overall environmental restoration effort.

⁷Complex Cleanup: The Environmental Legacy of Nuclear Weapons Production, February 1991.

⁸The Advisory Committee on Nuclear Facility Safety, chaired by John Ahearne, submitted its final report to the Secretary on November 12, 1991. A report by the Subcommittee on Environmental Cleanup was part of the Committee's final report, which reviewed the cleanup at three DOE sites—Savannah River, Rocky Flats, and Hanford.

DOD [the Department of Defense], and EPA are all competing for essentially the same limited pool of experienced and technically qualified contractors.”

According to DOE's Deputy Assistant Secretary for Environmental Restoration, the shortage of qualified personnel is a problem. He stated that the shortage is making it difficult for a contractor to bid for both the Fernald and Hanford pilot tests at the same time because of the difficulty in putting together two separate qualified teams. Nonetheless, he stated that the lack of contractor expertise in dealing with radioactive wastes was not a problem for the environmental restoration program because DOE's Waste Management Division was more responsible for managing radioactive wastes than was the ERMC. Yet, we found that the ERMC's involvement with radioactive materials could be extensive. At Hanford, the ERMC will be responsible for cleanup of “past practice” sites⁹ and for decommissioning and decontaminating surplus buildings. The majority of the 1,100 “past practice” sites at Hanford contain both radioactive and hazardous wastes, and about 35 percent of the buildings that could be decommissioned and decontaminated are radioactively contaminated. At Fernald, the ERMC's responsibilities include managing radioactive wastes. Consequently, the contractor will need expertise in dealing with radioactive materials.

Improved Management Control May Be Difficult to Achieve

DOE program officials expressed concern that the existing M&O approach often makes it difficult to establish how responsibility for the cleanup is divided. The ERMC approach seeks to improve management control by (1) using a single contractor responsible for the cleanup and (2) setting up clear delineations of responsibility and authority. As DOE implements the ERMC concept into existing work arrangements this goal may prove difficult to achieve, particularly at Hanford.

For example, at Hanford cleanup responsibilities will be divided among three parties—the ERMC, the M&O contractor, and the U.S. Army Corps of Engineers. In the case of Hanford's 149 single-shell tanks,¹⁰ responsibilities will be divided between the ERMC and the M&O contractor as follows:

⁹“Past practice” sites are areas where solid wastes were once buried or liquid wastes were once discharged to the ground, but where the practice is now no longer followed.

¹⁰Millions of gallons of highly radioactive wastes are stored in buried tanks at Hanford. The walls of these single-shell tanks consist of a carbon steel liner encased in concrete. Wastes from a number of these tanks have leaked into the ground. See *Nuclear Waste: Hanford Single-Shell Tank Leaks Greater Than Estimated* (GAO/RCED-91-177, Aug. 5, 1991).

- The present M&O contractor will be responsible for the transfer and disposal of the tanks' contents.
- Once the tanks are empty, the ERMCM will be responsible for the disposal of the tanks.
- In the interim, if there are any leaks to the ground around the tanks, the ERMCM would be responsible for cleaning up the leaks.

Working relationships will also have to be developed between the M&O and the ERMCM for the disposal of wastes generated in the environmental restoration; the decontamination of contaminated equipment; the sharing of on-site and off-site laboratory testing facilities; the preparation of the Environmental Restoration and Waste Management Five-Year Plan; and the inputs to the annual DOE budget for DOE Hanford.

The organizational relationship between the ERMCM and the Corps of Engineers, which is responsible for cleaning up an area at Hanford, is also not clear. Under the present proposal, the overall direction for the Corps would come from DOE, but day-to-day direction of the Corps' work would come from the ERMCM.

In responding to concerns about the management complexities, the Secretary of Energy has said that the added complexities of the ERMCM arrangements at Hanford will not be a problem. He said that many DOE sites, including Hanford, have operated well in the past with multiple contractors. Nonetheless, both DOE headquarters and site personnel tasked with implementing the ERMCM concept expressed concern about the complicated nature of the Hanford management structure. State and federal regulators tasked with overseeing the environmental cleanup at Hanford also expressed similar concerns about the added complexities.

Opportunities to Reduce Costs May Not Materialize

While DOE believes that the ERMCM concept will reduce cleanup costs, we found limited evidence that savings could result in two key areas that were cited as having potential cost-saving advantages.

The ERMCM concept is intended to control costs through the use of more fixed-price subcontracts.¹¹ However, we found no requirement or increased incentive in the ERMCM requests for proposals that would produce more fixed-price subcontracts. Furthermore, since DOE has only collected site data on the present level of fixed price subcontracting at Fernald and has not studied its potential at either site, the agency does not know the extent

¹¹A fixed-price contract provides the contractor with a fixed payment for the agreed-upon task.

to which more fixed-price subcontracting is possible. Even if more fixed-price contracting is possible, it is not apparent why it could not be pursued within the existing contracting structure.

DOE officials said reducing labor costs was another way that the ERM would control costs. However, both ERM requests for proposals have provisions that the sites' labor rates will not change. Additionally, both contractors will be required to hire as many of the existing M&O staff members—at current salary and benefit levels—as the contractors can effectively employ. Thus, it would appear that the only way to make significant labor cost savings would be to reduce the number of existing employees. However, the Secretary has stated that, at Hanford, those contractor employees whose jobs are eliminated and who are not offered employment with the new ERM may elect to remain with their present company in another position.

Faster Restoration of Sites May Not Be Easily Achieved

A final goal of the ERM concept is to speed site restoration by using contractors who (1) could focus wholly on the cleanup, (2) are provided incentives for timely completion, and (3) could apply their RCRA/CERCLA experience.

DOE initially hoped that the ERM would focus its attention solely on cleanup, thus speeding site restoration. However, DOE is now projecting that about 41 percent of the ERM's work load at Fernald will be M&O-type duties. Similarly, at Hanford, in addition to managing the restoration contractors, the ERM will also have to manage its interactions with the other contractors and the Corps of Engineers.

The ERM's lack of added incentives may also be an impediment to improving timeliness. The ERM pilot tests leave contractor incentives largely unchanged. Both sites have cleanup agreements with EPA and the cognizant states setting forth specific cleanup milestones. Under existing award fee incentive systems, the amount the contractor receives is based, in part, on meeting these milestones. The ERM proposal does not alter this incentive structure.

Adding contractors with RCRA/CERCLA expertise, even if that expertise is available, may not prove to be as advantageous as DOE hopes it will be. According to the environmental regulators from the EPA regions and states involved in overseeing the Hanford and Fernald cleanup, the present M&Os have made progress in developing the necessary knowledge of the

RCRA/CERCLA processes. The Deputy Assistant Secretary for Environmental Restoration characterized the Hanford M&O as one of the most knowledgeable in the DOE system about RCRA/CERCLA processes, but he added that this level of knowledge is not universal among DOE's M&Os.

DOE Is Not Fully Prepared to Implement the ERM Concept

Since it began implementing the ERM concept in August 1990, much of DOE's attention has been focused on meeting its schedules for selecting the ERMCs. As a result, some key aspects of the implementation—in particular, planning for the evaluation of the ERM pilot tests and staffing and preparing the DOE site personnel for their new oversight duties—have received limited management attention or action.

No Formal Plans to Evaluate ERM Pilot Tests

Officials at DOE headquarters and the sites said they had no formal plans for evaluating the two pilot tests at Fernald and Hanford. DOE management officials said they would judge success by the contractor's ability to meet the sites' clean-up milestones and hold down costs, but the officials could not identify what would be used to measure performance for timeliness and cost control, nor could they say how soon they would begin assessing the performance of the pilot test other than that they would be closely watching the 3- and 4-month transition periods for the two ERMCs.

Since 1989, DOE-EM has sought to comply with Office of Management and Budget requirements for establishing baselines for major federal acquisitions. Efforts are under way to develop cost, schedule, and technical baselines for managing DOE's Environmental Restoration projects, but these have long been delayed.¹² DOE-EM has not identified what type of cost and schedule baseline information might be useful for judging ERM's success.

According to the Deputy Assistant Secretary for Environmental Restoration, as a result of our review, DOE-EM is developing criteria for evaluating the ERM concept. However, the criteria have not been finalized.

Overseeing ERM Requires More and Better Trained DOE Staff

Because of changes in the relationship between the contractor and DOE, implementation of the ERM concept will require additional staff as well as training for existing DOE site personnel. For example, one feature of the ERM concept that increases DOE's direct involvement is a change in the

¹²For more information, see Nuclear Health and Safety: More Can Be Done to Better Control Environmental Restoration Costs (GAO/RCED-92-71, Apr. 20, 1992).

way the contractor will be paid. M&O contractors at Fernald and Hanford operate under a letter-of-credit arrangement with DOE, from which the M&Os pay for the restoration. Specific DOE review of the restoration work is not required prior to payment. Under the ERM concept, DOE will use an invoice system, where the ERM submits monthly invoices for costs it incurs. DOE expects field office project management and financial personnel to review and approve the invoices before they are paid. DOE-EM hopes that this monthly scrutiny will result in better control over the contractor's actions and force the sites to become more knowledgeable about their programs.

However, DOE-EM has not provided the sites with guidance on the nature of the invoice review or the level of detail in the review. Further, DOE personnel tasked with this new approach expressed concern either about the added burden and their lack of experience with it, or that they had not planned how the review will be conducted. Timely review and payment will be needed if DOE is to avoid interest payments.

The Deputy Assistant Secretary for Environmental Restoration said that he had recently requested additional staff for the sites in fiscal year 1993. However, not all of the staff requested for the two pilot test sites are intended to respond to the increased work load of overseeing the ERM. According to the Fernald Deputy Site Manager, the added staff will be used to handle the increased pace of environmental cleanup at the site, to change the site into a DOE field office, and to oversee other DOE sites in Ohio should they be consolidated into Fernald. The site's preliminary implementation plans for moving to field office status contain only a limited discussion regarding preparation for the duties of overseeing the new ERM.

The Deputy Assistant Secretary also noted the need for additional training for the DOE site staff. He stated that staffing and training for the oversight of the ERM pilot tests were the most vulnerable areas in implementing the tests. However, as of May 1992, DOE had not developed this training or identified how it would be delivered.

Conclusions

Improving how DOE manages the environmental restoration of the nation's weapons complex will be key to controlling the cost of and time frames for the cleanup. DOE has set several important goals for the ERM concept. However, several constraints, such as the lack of qualified clean-up personnel, may make it difficult to achieve the concept's goals. In this

situation, evaluation should be a major component in the implementation of the 5-year pilot tests. However, DOE has not established final criteria for measuring the concept's success, identified the information needed to evaluate the concept, or established a timetable for conducting the evaluation. In addition, DOE has not yet obtained all the staff needed to oversee the pilot tests or developed plans to train the existing staff it does have in their new oversight responsibilities.

Recommendations

To improve the implementation of the ERM concept pilot tests, we recommend that the Secretary of Energy direct the Assistant Secretary for Environmental Restoration and Waste Management to do the following:

- Prepare and execute a plan for evaluating the pilot tests. The evaluation plan should establish specific objectives for the ERM concept pilot test, criteria for judging its success, data that will be needed to conduct the evaluations, and time frames for conducting the evaluations.
- Identify the staffing and training needs for overseeing the pilot tests, and prepare and execute a plan for acquiring and training the necessary staff.

Scope and Methodology

We performed our work between January 1992 and July 1992 in accordance with generally accepted government auditing standards. To identify the goals for the ERM concept and any impediments to achieving these goals, we reviewed the draft and final ERM proposals. We discussed the provisions of the proposals with the DOE-EM program officials and the DOE officials at the Fernald, Ohio, and Hanford, Washington, sites. We also contacted the Advisory Committee on Nuclear Facility Safety's Environmental Cleanup Subcommittee, which had reviewed the ERM concept.

To determine how prepared DOE was to implement the ERM concept, we reviewed DOE plans, interviewed officials responsible for implementing the concept, and discussed the implementation with officials of environmental regulatory bodies from the states of Ohio and Washington, as well as regional officials of the Environmental Protection Agency.

We discussed this report with the Deputy Assistant Secretary for Environmental Restoration and other responsible DOE officials. While they agreed that our report was factually correct, they expected the ERM concept to be successful and to overcome the impediments we identified. They agreed that additional attention was needed regarding evaluating the

implementation of the ERMC concept and providing additional staffing and training. As agreed with your office, we did not obtain written agency comments on this report.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time, we will send copies to the appropriate congressional committees; the Secretary of Energy; the Director, Office of Management and Budget; and other interested parties.

This work was performed under the direction of Victor S. Rezendes, Director, Energy and Science Issues, who may be reached at (202) 275-1441 if you or your staff have any questions. Other major contributors to this report are listed in appendix I.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "J. Dexter Peach".

J. Dexter Peach
Assistant Comptroller General

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