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DOE's Management and Oversight of the Nuclear
Weapons Complex

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Before the
Department of Energy Defense
Nuclear Facilities Panel
Committee on Armed Services
House of Representatives

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Mr. Chairman and Members of the Panel:

We are pleased to be here today to provide our views on the Department of Energy's (DOE's) management and oversight of the nuclear weapons complex. Specifically, we will discuss four major issues concerning the weapons complex, including (1) continuing environmental, safety, and operational problems; (2) longstanding management problems; (3) recent DOE actions with respect to management and oversight initiatives; and (4) our views on these initiatives and implications for the future management of the complex.

Today, the weapons complex is virtually shut-down. The complex faces a wide variety of serious environmental, safety, and operational problems, including facilities that have deteriorated; others that do not comply with environmental, safety, and health standards; radioactive wastes that have been stored for decades; and contaminated groundwater and soil that need to be cleaned up. The estimated cost to address these problems is staggering--ranging up to \$155 billion. These and other problems have been due, in large part, to DOE's failure to effectively manage the nuclear weapons complex. These management problems have included an emphasis on production over environmental and safety matters, shortcomings in DOE's oversight function, the absence of a specific strategic plan for addressing the modernization and environmental problems of the complex, an over reliance on contractors, and limited technical staff to carry out departmental responsibilities.

Recently, DOE has taken actions designed to better deal with its problems. These actions include a management and oversight restructuring within DOE, issuance of strategic plans for modernization and environmental cleanup of its facilities, and efforts to make its contractors more accountable. Also, the Defense Nuclear Facilities Safety Board, mandated by the Congress, will provide outside, independent safety oversight.

We believe that DOE's recent actions are steps in the right direction for ensuring the safe and environmentally sound operation of DOE's nuclear facilities. However, we have identified several issues that may impact on DOE's ability to implement these actions as well as to effectively manage the complex in the future. Among other things, we believe that successful management of the complex will depend on DOE's commitment to environmental, safety, and health issues, the close coordination and interaction of various oversight groups, and the availability of technically qualified staff. More importantly, although DOE has issued a strategic plan for modernizing the complex, this plan is currently being revised and important changes are being studied. Thus, modernization is continuing without benefit of an overall approved strategic plan. Without such a plan, it is difficult to determine whether the projects currently being funded will be required after the plan is revised.

Before discussing each issue in more detail, I would like to provide a brief overview of the nuclear weapons complex.

BACKGROUND ON THE NUCLEAR DEFENSE COMPLEX

The basic mission of DOE's nuclear weapons complex is, as you know, to produce nuclear material (such as plutonium and tritium) for defense purposes--primarily for weapons and naval fuel. This complex consists of 17 major facilities located throughout the United States. The total budget request for the complex for fiscal year 1991 is \$8.6 billion and involves a staff of approximately 80,000 people, including both DOE and contractor employees.

The facilities in the complex are owned by the federal government and operated by contractors. DOE is responsible for oversight of these contractor operations. Many of these facilities

were built over 40 years ago and have either passed or are reaching the end of their designed useful life.

CONTINUING ENVIRONMENTAL, SAFETY AND
OPERATIONAL PROBLEMS AT THE COMPLEX

Our work over the past several years has described various unresolved environmental, safety, and operational problems within the nuclear weapons complex. (See attachment I for a list of relevant reports and testimonies). Specifically, we have called attention to

- serious safety questions regarding the operation of DOE reactors and other facilities;
- the deterioration of DOE's facilities that result from aging and inattention to capital improvements;
- groundwater and soil contamination at many DOE installations around the country, which are at levels hundreds to thousands of times above standards; and
- the need to dispose of radioactive waste that DOE has been temporarily storing for decades at various sites around the country.

We have also pointed out that our nation's ability to make nuclear material for weapons is virtually nonexistent with the shutdown of the Savannah River reactors, the Rocky Flats Plant, and the Hanford Purex reprocessing plant. The Waste Isolation Pilot Plant, a repository for disposing of certain types of radioactive waste, is still not open, and waste is continuing to back up at DOE facilities. Addressing these and other safety, environmental, and operational problems is a formidable task, which we have estimated could cost up to \$155 billion.

LONGSTANDING MANAGEMENT PROBLEMS
HAVE PREVAILED WITHIN THE COMPLEX

Throughout the last decade, Mr. Chairman, our work, as well as other independent studies, has identified continuing problems with DOE's management of the complex. These management problems have contributed to the seriousness of the environmental, safety, and health problems at the nuclear weapons complex. Specifically, these problems have included, among others, DOE's emphasis on production over environmental, safety, and health matters; shortcomings in DOE's oversight of these matters, including lack of technically qualified staff; and an inadequate strategic plan for addressing the problems of the complex. In fact, prior to 1985 a comprehensive focus on environmental, safety, and health issues did not exist within DOE's management structure.

As early as 1985, we reported that DOE placed more emphasis on contractor performance in achieving production goals than on environmental, safety, and health matters. And, as recently as 1989, we indicated that under DOE's award fee process substantial monetary awards have been paid to some DOE contractors despite the existence of significant environmental, safety, and health problems at the facilities managed by them. DOE officials have also acknowledged that, in the past, production has taken priority over environmental and safety considerations.

In addition, we have issued numerous reports that have indicated shortcomings in DOE's oversight of environmental, safety, and health matters. For example, in 1981 we highlighted deficiencies in DOE's programs for worker protection, emergency preparedness, facility safety, and environmental monitoring at all types of DOE nuclear facilities. Despite several actions taken by DOE since that time to improve its oversight of nuclear facilities, including the establishment of the Assistant Secretary

for Environment, Safety, and Health and the Advisory Committee on Nuclear Facility Safety, problems persisted. The Secretary of Energy, on taking office in 1989, determined that the existing oversight system for environmental, safety, and health matters at DOE was a failure. The major cause was confusion among the roles of DOE's headquarters program management, its field organization, and the Office of Environment, Safety, and Health--the result of an absence of clear lines of authority and responsibility, dilution of accountability, and an absence of adequate specificity in DOE orders.

Furthermore, lack of technically qualified staff has limited the effectiveness of DOE's environmental, safety, and health oversight functions. Because of difficulties in recruiting and retaining personnel with the necessary expertise, DOE has had to rely extensively on the use of contractors to assist in providing assurance that DOE facilities are operated safely and in an environmentally sound manner. Studies throughout the 1980s have shown that DOE has not been able to properly perform environmental and safety oversight because DOE's staff lacked the technical capabilities and experience.

Also, in March 1987 we pointed out that DOE did not have an adequate plan for addressing the wide-ranging problems it faces. At that time, we called upon DOE to develop a strategic plan for setting forth (1) the projected facility requirements for an updated nuclear weapons complex; (2) a comprehensive picture of the environmental, safety, and health issues that had to be addressed; and (3) a framework for prioritizing the billions of dollars in federal expenditures needed to remodel or build new facilities, as well as to clean up environmental contamination.

I will now discuss DOE's actions to address these and other problems of the complex.

RECENT DOE MANAGEMENT
AND OVERSIGHT INITIATIVES

Recently, DOE has taken several actions designed to better deal with these longstanding management problems. These recent initiatives include (1) a management and oversight restructuring within DOE; (2) issuance of strategic plans on environmental restoration and waste management, and modernization of the complex; (3) assessments of its facilities to determine whether they meet federal, state, and local environmental, safety, and health requirements; and (4) efforts to make contractors more accountable for environmental, safety, and health matters.

DOE is now restructuring its internal oversight responsibilities in order to hold line managers accountable for environmental, safety, and health matters. DOE's objective is to instill a "culture" throughout DOE and its contractors towards environmental and safety matters while establishing clear lines of responsibility for these issues.

This organizational restructuring has been two-fold. First, DOE has established an Office of Environmental Restoration and Waste Management to consolidate environmental cleanup, compliance and waste management activities. This office is responsible for providing centralized management for waste management operations, environmental restoration, and applied research and development programs and activities, including program policy guidance to its field offices. Second, DOE is in the process of restructuring safety functions to ensure the safe operations of its facilities. Specifically, DOE is transferring responsibility for monitoring and overseeing operations at DOE facilities among various existing and newly created DOE offices.

The Defense Nuclear Facilities Safety Board, whose board members were appointed this past year, was created to provide

outside, independent safety oversight. The Board's statutory authority includes conducting on-site inspections, stationing resident inspectors at DOE sites, performing critical reviews of DOE standards, and providing recommendations necessary for safe operations.

In recent years, DOE has issued a couple of reports to address environmental restoration and modernization of the nuclear defense complex. Last year, DOE issued its Environmental Restoration and Waste Management Five-Year Plan report which lays out a \$20 billion effort over the next 5 years (fiscal years 1991 through 1995) to (1) begin bringing facilities into compliance with environmental laws, (2) begin cleaning up environmental contamination at DOE sites, and (3) manage the wide variety of radioactive and hazardous waste that DOE generates. The plan also begins implementing an applied research and development program to help resolve DOE's environmental and waste problems.

In December 1987 the Congress mandated that the President prepare a plan to modernize the nuclear weapons complex. One year later, DOE delivered the United States Department of Energy Nuclear Weapons Complex Modernization Report to the Congress. This modernization plan called for a \$45 billion restructuring of the complex to build new facilities and reactors, upgrade others, and phase out other facilities.

DOE has also begun assessments of its facilities to ensure that they achieve and maintain full compliance with federal, state, and local environmental, safety, and health requirements. These "Tiger Team" assessments evaluate DOE's environmental, safety, and health programs and advise the Secretary--independent of line management--of their (1) effectiveness; (2) compliance with federal, state, and local regulations; and (3) internal DOE requirements. Recently, in addition to DOE personnel, Occupational Safety and Health Administration inspectors have

participated in these assessments to provide their perspective on DOE's worker health and safety programs.

Furthermore, DOE has undertaken efforts to make its contractors more accountable for environmental, safety, and health matters. Specifically, DOE has begun to implement changes to improve its award fee process. These changes include having all awards reviewed and concurred in by DOE headquarters and requiring that environmental, safety, and health matters be weighted by at least 51 percent in the evaluation process. In addition, in January of this year, Secretary Watkins proposed an amendment to the Department's acquisition regulations that would make management and operating contractors liable for certain costs, claims, and liabilities currently reimbursed by DOE. The proposed non-reimbursable costs include, among others, fines and penalties arising from contractor noncompliance with environmental laws.

GAO VIEWS ON DOE'S INITIATIVES
AND IMPLICATIONS FOR THE FUTURE

DOE's recent management initiatives are a positive step in addressing the longstanding management issues of the complex. However, we have identified several issues that may affect DOE's ability to implement these initiatives as well as effectively manage the complex in the future. For example, with respect to the management and oversight restructuring, we believe that its success will depend on DOE's commitment to environmental, safety, and health issues, close coordination and interaction among various oversight groups, and the availability of technically qualified staff. Further, success of the "Tiger Team" assessments and the contractor accountability initiatives will depend on DOE's commitment to and effective implementation of them. Also, while we consider the modernization of the complex to be extremely important, we believe that potential changes to DOE's modernization plan, coupled with DOE's ongoing modernization efforts, have

important budgetary implications. I would like to discuss our views on each of DOE's initiatives at this time.

Management and Oversight Restructuring

DOE's organizational and management restructuring provides a framework for establishing the clear lines of responsibility needed to effectively manage the nuclear weapons complex. It is encouraging to see that the restructuring includes a combination of internal, independent internal, and independent, external oversight functions. We have long supported the need to improve DOE's management and oversight program by having (1) line management responsible for environmental, safety, and, health matters; (2) an effective oversight structure to oversee how line management is carrying out its environmental, safety, and health responsibilities; and (3) an independent organization outside of DOE's control that oversees the agency's internal safety program.

However, we believe that the success of DOE's restructuring will likely depend on four key issues. First, success will depend on the level of commitment to environmental, safety, and health issues throughout the Department, particularly how the relationship between production and these issues are managed. As pointed out by the National Academy of Science in 1987, assurance of safety at DOE's reactors cannot be generated by organizational restructuring alone; a change in attitude towards safety will be needed as well. The facilities are manned by staff who are familiar with operations from long experience, but they are also accustomed to the historic attitude that production takes precedence over environmental, safety, and health goals. Taking this into account, instilling the right attitude towards self-assessment of environmental, safety, and health matters will likely be a slow process.

Second, effective communication between each DOE group within line management and the internal oversight offices is extremely

important because the failure of the current system resulted, at least in part, from the absence of clear lines of authority and responsibility. Specifically, role clarification and clear guidance will be needed to ensure that each group clearly understands its responsibilities and relationship with the other groups. For example, due to the potential hazard to the public and environment from a nuclear accident, it is imperative that the office and/or staff with authority to shutdown a nuclear facility be clearly defined.

Third, because DOE's restructuring of management is still undergoing change and will entail several staff and function moves over a period of time, it is important that the various internal and external oversight groups coordinate and interact closely. Close coordination and interaction should help to minimize any inefficiencies and maximize oversight effectiveness, especially during the transition period of the realignment. For example, the transition period provides DOE with the opportunity to establish an early positive working relationship with the congressionally mandated Defense Nuclear Facilities Safety Board. Continuing dialogue between DOE and the Board can also serve to enhance DOE's ability to respond more appropriately and timely to the Board's observations and recommendations.

Fourth, sufficient technical resources will be needed to effectively carry out the oversight functions. However, as I pointed out earlier, there has historically been and continues to be a shortage of such staff. Furthermore, competing demands for them may hinder DOE's efforts in attracting them. The competition is not just limited to private industry working in these areas; the competition extends to other organizations within the federal government as well as within DOE. For example, there are currently over 1,200 sites that are either on or proposed for EPA's National Priority List under the Superfund program. There are also tens of thousands of other sites that will have to be cleaned up that are

not currently on the list. DOE will have to compete for the technically qualified staff with the federal, state, and private industry groups responsible for the clean up of these numerous sites. If DOE is unable to acquire the needed technically qualified staff, effective environmental, safety, and health oversight by the department in the future is questionable. Consequently, the positive concept of the restructuring may not, in itself, ensure the effective management and oversight that DOE's renewed emphasis on environmental, safety, and health issues will require.

Strategic Plans

In our view, DOE's Environmental Restoration and Waste Management Five-Year Plan lays out an approach for cleaning up DOE facilities and bringing DOE operations into compliance with environmental laws. It also begins to provide the Congress with the type of information it needs to exercise effective oversight. The next step for DOE is to develop programs to deal with these environmental problems and effectively implement them to ensure that its facilities are brought into compliance.

We are more concerned about DOE's modernization plans. DOE is moving forward with its modernization efforts. The Department has included \$1.9 billion for modernization in its fiscal year 1991 budget, including design work on two new reactors, restart of operations on DOE's Savannah River reactors, and renovation of plutonium operations at the Rocky Flats Plant. Yet, at the same time, the plan, as outlined in the United States Department of Energy Nuclear Weapons Complex Modernization Report, is being revised and important changes, such as relocation and closing of key facilities, are being studied.

DOE's future modernization plans carry with them important budgetary implications. In the past, questions have been raised

about the need for additional plutonium production capabilities, two new production facilities, and upgrading facilities which may be phased out. Consequently, without the benefit of an overall approved strategic plan, it is difficult to determine whether the projects currently being funded will be required after the plan is revised.

"Tiger Team" Assessments and
Contractor Accountability

With respect to "Tiger Team" assessments, we believe that if they are properly conducted, they could provide DOE with opportunities for improving the effectiveness of its environmental, safety, and health program. Preliminary analyses of trends of the first six assessments show that authority and responsibilities for implementing environmental, safety, and health requirements are not well defined or understood, management systems lack sufficient discipline to implement environmental, safety and health programs, and there is a shortage of qualified personnel to carry out these programs at the facilities. The ultimate test of these assessments' effectiveness will be determined by the extent to which DOE takes corrective action for the identified deficiencies. However, DOE has historically been slow in correcting the environmental, safety, and health problems that it has identified in previous environment and safety appraisals.

Further, as noted, DOE has begun to implement changes to improve its award fee process and to increase DOE's oversight of its contractors in order to make them more accountable for environmental and safety matters. We believe that if DOE properly implements these changes, it should increase the contractors' sensitivity to and performance regarding environmental compliance and safety matters.

SUMMARY

In summary, the environmental, safety, and health problems facing the nuclear weapons complex are still critical. To DOE's credit, it has made several organizational changes that will enable it to more effectively deal with its problems. Although these actions, in themselves, do not remedy the problems facing the complex, they are an important aspect of creating an organization and management system within which the capability to effectively plan, implement, and oversee corrective actions is developed. Rebuilding and cleaning up the complex is a long-term, costly undertaking, and the pace, timing, and resources devoted to this undertaking are fraught with uncertainties given the huge budget deficit and other competing demands. There are no quick fixes on the horizon. With this in mind, I believe it is wise that DOE takes the time now to properly organize itself to manage the actions needed to address the problems it faces. This managerial restructuring will likely continue this year as DOE attempts to change its "culture" and acquire the necessary expertise to effectively deal with the problems.

For our part, because of the importance of ensuring that the nuclear weapons complex is safe and operated in an environmentally sound manner, we will continue to monitor DOE's progress in implementing these initiatives and assess any future actions.

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Thank you, that concludes my testimony. We would be happy to answer any questions.

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