United States General Accounting Office

GAO

Testimony

Before the Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
House of Representatives

For Release on Delivery
Expected at
10:00 EST
Tuesday
March 1, 1994

NUCLEAR HEALTH AND SAFETY

Safety and Health Oversight at DOE Defense Nuclear Facilities

Statement of Victor S. Rezendes,
Director, Energy and Science Issues,
Resources, Community, and Economic Development Division

GAO/T-RCED-94-138

Mr. Chairman and Members of the Subcommittee:

We are pleased to participate in this hearing on independent safety and health oversight for the Department of Energy's (DOE) nuclear weapons complex. DOE's nuclear weapons complex involves a wide variety of nuclear activities that can place workers and the public in potentially unsafe situations and expose them to radiation and toxic chemicals. Since 1981, we have identified numerous safety and health problems throughout the complex and on many occasions have argued that strong outside independent oversight of the complex is critical. In today's statement, we would like to briefly discuss

-- DOE's historical emphasis of production over safety at its nuclear weapons complex,

-- the importance of outside independent safety and health oversight for DOE's nuclear facilities, and

-- actions taken by DOE to increase internal safety and health oversight and by the Congress to provide independent safety and health oversight.

In summary, DOE's history contains numerous examples whereby safety, health, and environmental concerns have taken a backseat to weapons production. DOE officials have acknowledged that, in the past, this has occurred. Since the late 1980s, DOE has made efforts to strengthen its internal oversight, and in 1988 the Defense Nuclear Facilities Safety Board was created by the Congress to provide outside independent oversight. The changes made by DOE and the creation of the Safety Board have improved safety and health operations at DOE. However, we believe it is appropriate to assess the effectiveness of these controls and work to provide greater assurance that health and safety are not compromised.

EMPHASIS ON PRODUCTION AT DOE'S WEAPONS FACILITIES

DOE's nuclear weapons-related operations routinely use and generate hazardous and/or radioactive materials. Some of the radioactive material, because of its lethal levels of radiation and high-heat generation, must be handled with specialized shielded equipment to prevent workers from exposure. Other material, while less radioactive, is very toxic and can present a health hazard. DOE operations also involve controlling nuclear reactions and handling highly fissionable material. Many of DOE's operations have the potential for accidentally releasing radioactive materials to the environment.

In addition to the inherent dangers involved in DOE's nuclear weapons complex, the safety and health risks are compounded by the age of the facilities. Much of the complex was constructed in the 1940s and 1950s, and although the facilities have been upgraded many are approaching the end of their useful life. Some have deteriorated to the point where they have been shut down or have safety and operational problems. Repair work is difficult because equipment and processes within the complex have become obsolete, and spare parts are virtually impossible to procure. Many facilities were constructed to less stringent codes than today's codes and do not comply with current safety and health standards. In addition, a large inventory of radioactive materials and wastes is being temporarily stored within the complex.

Over the years, we reported to the Congress that the seriousness of environmental, safety, and health problems at DOE's weapons complex has been compounded by DOE's management practices. More specifically, we have stated that production has historically taken precedence over safety and health matters. For example, during the 1970s, DOE considered closing its Fernald, Ohio, facility because of reduced demand for the uranium metal it produces.[1] While DOE debated the shutdown, capital improvements were not made, much of the equipment became obsolete, and the number of employees was reduced. After fiscal year 1981, increased demand for the uranium metal put a strain on the facility and its management. Among other things, a number of radioactive releases occurred. A federal task force, chartered in April 1984, reviewed Fernald's operations and concluded that Fernald overemphasized production, making environmental and worker safety and health secondary concerns.

DOE's Savannah River reactors offer another example. During the early- and mid-1980s, DOE operated these reactors at or near their maximum power levels. In 1987, we reported that serious questions existed about a growing backlog of maintenance work on the reactors and whether the reactors' emergency cooling system was capable of preventing fuel from melting during an accident. We reported that addressing these problems must become a high priority at the plant.[2] The reactors were shut down in 1988.

In 1989, we reported that, under DOE's award fee process, substantial monetary awards have been paid to some DOE contractors on the basis of production despite the existence of significant environmental, safety, and health problems at the facilities

---

[1]Environment, Safety, and Health: Information on Three Ohio Defense Facilities (GAO/RCED-86-51FS, Nov. 29, 1985).

[2]Management and Safety Issues Concerning DOE's Production Reactors at Savannah River, S.C. (GAO/T-RCED-87-5, Mar. 12, 1987).

managed by them.[3] For example, during fiscal years 1986 through 1988, DOE safety staff identified many safety and health deficiencies at the Rocky Flats facility. Of particular concern were problems in the facility's radiological protection program and a lack of commitment by the facility's management to improve overall safety and health conditions. Despite these problems, the operating contractor received about $26.8 million in award fees. This amount was approximately 84 percent of the maximum award fee available to the contractor at that time.

DOE officials have acknowledged that, in the past, production has taken priority over environmental and safety concerns. In our view, this situation occurred in the 1980s because, unlike the commercial nuclear industry, DOE had little internal safety and health oversight and no external independent safety and health oversight. Compounding this problem was the need for secrecy and the arms race with the former Soviet Union. Together, an atmosphere was created whereby safety and health issues were given a backseat to production.

IMPORTANCE OF INDEPENDENT SAFETY AND HEALTH OVERSIGHT

In a number of past reports and testimonies, we emphasized the need for and importance of safety and health oversight for the nuclear weapons complex. As early as 1981, we highlighted deficiencies in DOE's programs for workers' protection, facility safety, and environmental monitoring at DOE's facilities.[4] We argued for a separate office within DOE specifically set up to oversee safety matters within the Department. Also, in the 1981 report, in a 1986 report[5], and various testimonies, we highlighted the need for outside, independent oversight of safety- and health-related matters at DOE facilities. Independent oversight is essential to provide the public with assurance that DOE's weapons facilities are being operated in a safe manner and to provide a check on DOE's operating contractors to help ensure that safety concerns are not subservient to programmatic interests such as production goals.

---

[3]Nuclear Health and Safety: DOE's Award Fees at Rocky Flats Do Not Adequately Reflect ES&H Problems (GAO/RCED-90-47, Oct. 23, 1989).

[4]Better Oversight Needed for Safety and Health Activities at DOE's Nuclear Facilities (EMD-81-108, Aug. 4, 1981).

[5]Nuclear Safety: Safety Analysis Reviews for DOE's Defense Facilities Can Be Improved (GAO/RCED-86-175, June 16, 1986).

In a 1988 report, we proposed five key elements that we believe are necessary for any outside, independent oversight approach to be effective in ensuring safety.[6] These elements are independence, technical expertise, the ability to perform reviews of DOE facilities as needed, clear authority to require DOE to address the oversight organization's findings and recommendations, and a system for providing public access to the organization's finding and recommendations.

First, independence means that the oversight organization must be structurally distinct and separate from DOE. This is important so that the organization is visibly removed from DOE's influence in funding, staffing, and the setting of the safety agenda. Second, any oversight organization must have the technical knowledge and capability to fully understand how DOE weapons facilities are designed and operated and what the safety ramifications are of their operation. This is particularly important in overseeing the unique facilities and operations that DOE manages.

Third, an oversight organization should also be able to perform reviews of DOE's facilities as needed. These reviews are important to maintain a working knowledge of DOE's safety issues and to assess DOE's response to the organization's recommendations. An important factor in the organization's ability to perform reviews when needed is clear access to DOE's facilities and records. Fourth, DOE must be required to address the oversight organization's findings and recommendations. Such accountability is necessary so that DOE will seriously consider and act on these findings and recommendations. Without such a requirement, the oversight organization could easily become a DOE "consultant."

Finally, the findings and recommendations of the organization, if they are not classified, should be available to the public. This is important so that the Congress and the public can have a better understanding of the problems DOE faces and the risk in operating DOE's nuclear weapons complex. Also, public disclosure can bring attention to the problems and stimulate DOE to take the necessary corrective action.

ACTIONS TAKEN TO INCREASE OVERSIGHT AT DOE'S WEAPONS FACILITIES

The last three Secretaries of Energy have taken actions designed to increase the level of internal safety and health oversight over DOE's facilities. In 1985, DOE established an Environment, Safety, and Health Office and undertook other initiatives such as conducting detailed appraisals of safety and health performance at the Department's facilities.

---

[6]Nuclear Health and Safety: Oversight at DOE's Nuclear facilities Can Be Strengthened (GAO/RCED-88-137, July 8, 1988).

The next Secretary reorganized the Environment, Safety, and Health Office and established site resident safety and health inspectors at key DOE facilities. In addition, in an attempt to improve internal oversight, the Secretary established a management philosophy that required line management to be responsible for environmental protection and safety and health for its own activities. That Secretary also directed that environment, safety, and health take precedence over production and created the Office of Nuclear Safety to oversee activities affecting nuclear safety at DOE's facilities.

In April 1993, the current Secretary of Energy made a number of changes to DOE's oversight functions. Specifically, the Secretary announced a major restructuring of DOE's internal oversight programs, which included consolidating headquarters' safety and health policy and oversight functions within the Office of Environment, Safety, and Health and elevating the Assistant Secretary of that Office to report directly to the Secretary. The Secretary also undertook other actions including issuing a safety and health policy. In October 1993, we testified on these actions.[7] While recognizing their importance because they signaled DOE's continued commitment to worker safety and health, we pointed out that important issues remain. These include (1) the development of a detailed safety policy and (2) ensuring that DOE's Office of Environment, Safety, and Health has adequate authority, independence, and resources to do its job.

All the previously mentioned changes to health and safety oversight are related to internal DOE oversight. Yet, one of the most significant changes to safety and health oversight at DOE's nuclear facilities was in 1988, when the Congress created the Defense Nuclear Facilities Safety Board to ensure adequate protection of public health and safety from activities conducted at DOE's defense nuclear facilities.

The Safety Board is authorized, among other things, to review and evaluate the content and implementation of design, construction, operation, and decommissioning standards for DOE's defense nuclear facilities, investigate any event or practice at a DOE defense facility that the Board determines has or may adversely affect public health and safety, and review the design of new DOE defense facilities before construction begins. The Safety Board may also recommend design modifications to the Secretary of Energy if the modifications are necessary to ensure public health and safety. The Board can make any recommendation to the Secretary of Energy that it determines is necessary to ensure the public's protection.

---

[7]Safety and Health: Worker Safety and Health Oversight Issues Facing DOE (GAO/T-RCED-94-54, Oct. 21, 1993).

The Safety Board has issued 111 recommendations to the Secretary of Energy, all of which have been accepted. The recommendations have addressed issues such as the potential for explosions in nuclear waste tanks at DOE's Hanford facility, the need for operational readiness reviews prior to restarting nuclear facilities, discipline of operations in a changing defense nuclear facilities complex, and various aspects related to DOE's efforts to upgrade and restart its Savannah River reactors. In our view, these adopted recommendations have improved safety aspects of DOE's operations.

We have issued two reports designed to strengthen the role of the Safety Board. In a 1991 report, we reported on the accomplishments of the Safety Board during its first year of operation.[8] We also made a number of recommendations to improve the Safety Board's operations. The recommendations included that the Safety Board should develop procedures to ensure that all reviews of DOE's defense nuclear facilities, including the Board's meetings, discussions and agreements with DOE, and analyses leading to Safety Board recommendations are documented. We also recommended that the Safety Board develop a strategic plan to ensure that the Board's resources are efficiently focused on the most critical safety issues. The Safety Board implemented these recommendations.

In another 1991 report, we noted that DOE's Pantex plant was excluded from the Safety Board's purview and asked the Congress to consider including Pantex under the Safety Board's jurisdiction.[9] Subsequently, the Congress amended the Safety Board's enabling act to broaden the Board's jurisdiction to include the Pantex plant.

As you can see, improving internal and external oversight at DOE is a continual process. Both DOE's internal and external oversight must be periodically reviewed to ensure that these organizations are carrying out their responsibilities in the most effective manner. In this regard, we are currently reviewing and evaluating the Secretary's restructuring of DOE's internal nuclear safety oversight functions. A report should be available in the spring.

In regard to outside oversight, we are not conducting any study at this time. However, a study by an independent group--such as the group suggested by this Subcommittee, may be appropriate to determine if the Safety Board's authority needs to be strengthened. For example, the Safety Board currently does not have shutdown

---

[8]Nuclear Safety: The Defense Nuclear Facilities Safety Board's First Year of Operation (GAO/RCED-91-54, Feb. 5, 1991).

[9]Nuclear Health and Safety: More Attention to Health and Safety Needed at Pantex (GAO/RCED-91-103, Apr. 15, 1991).

authority over any DOE facility. It can only make recommendations. The need for such authority could be explored by an independent group. Furthermore, the independent group could also explore whether the Safety Board is the best mechanism for providing such outside independent oversight of DOE's facilities.

It should be noted that the Safety Board is required to include in its fifth annual report (1) an assessment of how well the Board has met the objectives originally established for it by the Congress and (2) the Board's recommendations for continuing, terminating, or modifying the Board's functions and programs, including recommendations for transition to some other independent oversight arrangement if it is advisable. In our view, this assessment and the Board's recommendations could be valuable to any independent group evaluating the future oversight needed for DOE's nuclear facilities.

SUMMARY

Past operations at the facilities in DOE's nuclear weapons complex, the age of the facilities, an emphasis of production goals over safety- and health-oriented goals, and inadequate safety and health oversight have left DOE with many safety and health problems that must be addressed. Even though the cold war has ended and DOE's weapons complex is no longer producing nuclear weapons, the legacy left from past operations and the need for new facilities creates many challenges that DOE and an external safety and health oversight organization must face in the future. DOE faces the enormous tasks of dismantling thousands of retired nuclear weapons, storing radioactive material removed from the retired weapons in addition to the vast quantities already on hand, restarting or decommissioning and decontaminating existing facilities, and constructing and operating new facilities.

- - - - -

Thank you, Mr. Chairman and Members of the Subcommittee. That concludes our testimony. We would be happy to respond to any questions.

(302114)

Ordering Information

The first copy of each GAO report and testimony is free. Additional copies are $2 each. Orders should be sent to the following address, accompanied by a check or money order made out to the Superintendent of Documents, when necessary. Orders for 100 or more copies to be mailed to a single address are discounted 25 percent.

Orders by mail:

U.S. General Accounting Office
P.O. Box 6015
Gaithersburg, MD 20884-6015

or visit:

Room 1000
700 4th St. NW (corner of 4th and G Sts. NW)
U.S. General Accounting Office
Washington, DC

Orders may also be placed by calling (202) 512-6000 or by using fax number (301) 258-4066.

United States
General Accounting Office
Washington, D.C. 20548-0001

Bulk Mail
Postage & Fees Paid
GAO
Permit No. G100

Official Business
Penalty for Private Use $300

Address Correction Requested