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Testimony

Before the Committee on Commerce
Subcommittee on Energy and Power
House of Representatives

For Release on Delivery
Expected at
9:30 a.m. EDT
Friday
July 21, 1995

NUCLEAR WASTE

Issues Affecting the Opening
of DOE's Waste Isolation
Pilot Plant

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064148 / 154770

Mr. Chairman and Members of the Subcommittee:

We are pleased to provide our views on legislation to amend the Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act. Over the last several years, we have performed a considerable body of work on the Department of Energy's (DOE) efforts to develop WIPP (located near Carlsbad, New Mexico) as a geologic repository for the permanent disposal of transuranic waste.¹ (See app. I for a list of relevant reports and testimonies.) Also, we are currently reviewing, for this Subcommittee and others, issues that DOE must address to begin operating the facility. My testimony is based on both our completed and ongoing work. Because large inventories of this waste are stored at several of DOE's nuclear facilities and more will be generated as the facilities are cleaned up, WIPP is a key part of any long-range environmental cleanup program for DOE's complex of nuclear facilities.

Originally, DOE expected that WIPP, which was authorized in 1979, would be operational in 1988; however, DOE now expects that date to slip by at least 10 years. The legislation under consideration at this hearing--H.R. 1663--could help to expedite the opening of WIPP by, among other things, (1) transferring from the Administrator of the Environmental Protection Agency (EPA) to the Secretary of Energy the authority to determine if the facility complies with EPA's disposal regulations and (2) establishing the intention of the Congress that the Secretary would make this determination by March 31, 1997, or 9 months earlier than DOE currently expects to obtain a certificate of compliance from EPA's Administrator. My testimony will address three points:

First, as the bill recognizes, ensuring compliance with environmental requirements is key to the timely opening of WIPP. Unfortunately, DOE has contributed to the delay in opening WIPP through its early emphasis on constructing the facility and then on performing unnecessary tests with transuranic waste in the facility, at the expense of attention to environmental compliance issues.

Second, transferring the primary responsibility for certifying compliance with disposal standards to the Secretary of Energy might not shorten the resolution of the compliance issue if the transfer undermined public confidence in the decision. In general, we have supported independent review of DOE's nuclear facilities as one way of increasing public confidence in the Department's operation of its facilities.

¹Transuranic waste is certain nuclear waste from the nation's nuclear defense program, such as tools, paper, and rags that are contaminated with long-lived radioactive elements having atomic numbers higher than uranium.

Finally, achieving the bill's objective of a decision on compliance with disposal standards in March 1997 would not necessarily ensure that WIPP opens then. Other elements of the disposal system, such as waste retrieval and storage facilities, need to be developed before waste can be processed and shipped to WIPP. Moreover, current and prospective budget constraints could make undertaking any new activities or accelerating activities to meet an earlier opening date difficult. We are now examining some of these issues at the request of this Subcommittee and others.

DOE WAS LATE IN EMPHASIZING ENVIRONMENTAL COMPLIANCE

In December 1979, the Congress authorized DOE to build and operate WIPP "for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States."² In a January 1981 record of decision on an environmental impact statement, DOE stated that it would use WIPP to dispose of transuranic waste stored at its Idaho National Engineering Laboratory and then make the facility available to dispose of transuranic waste from its other facilities. DOE added that WIPP would include an underground facility for conducting experiments on defense waste.

In April 1981, DOE began a 2-year evaluation of the site for WIPP. In July 1983, DOE decided to construct the facility and, by late 1988, it had essentially constructed the surface buildings, the first of eight planned underground disposal areas for transuranic waste, and shafts to the underground area.

Through 1988, DOE concentrated on building WIPP and gave little attention to resolving environmental compliance issues. During this period, DOE maintained that WIPP was a research and development facility not subject to EPA's disposal standards for repositories, which were issued in draft form in December 1982, unless and until the Department decided to use the facility for the disposal of transuranic waste. This position did not take into account DOE's earlier determination that it would use WIPP primarily for the disposal of transuranic waste from its Idaho facility and others.

As we testified before the Congress in 1991, when the construction of WIPP had essentially been completed, DOE has been trying to catch up in determining compliance with environmental

²Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (P.L. 96-164).

requirements.³ In 1988, the attention of DOE and other interested parties began to center on the seepage of brine (water saturated with salt) from the surrounding salt formation into mined underground areas. As a result, DOE proposed a series of tests with transuranic waste in the underground area of the facility to measure the effects of gases that might be generated from the interaction of brine and waste. As we discussed in our December 1994 report on WIPP, although many scientists, regulators, and others interested in WIPP initially agreed with the concept of the proposed tests, DOE was never able to establish that the tests were essential to demonstrating compliance with EPA's disposal standards.⁴

DOE's inability to establish the need for the proposed tests, coupled with technical concerns about them, caused DOE to cancel them in October 1993 in favor of laboratory-based tests. At the same time, DOE decided to focus most of its ongoing activities at WIPP on demonstrating compliance with environmental requirements.

DOE CERTIFICATION OF COMPLIANCE MIGHT NOT SHORTEN COMPLIANCE SCHEDULE

In our view, transferring the primary responsibility for certifying compliance with disposal standards from the Administrator of EPA to the Secretary of Energy might not shorten the certification of compliance with the standards if the transfer adversely affects public confidence in the safety of WIPP.

Certification of compliance is, in effect, a decision that WIPP can be operated as a repository and can safely contain DOE's transuranic waste for the thousands of years that the waste materials will remain hazardous. Because any decision would have far-reaching consequences, it is important to have a high degree of public confidence in that decision. But DOE's nuclear waste management has not enjoyed a high level of confidence with the public. In 1993, a task force assembled by the Secretary of Energy Advisory Board reported that a lack of trust in DOE's nuclear waste management was widespread and would continue for a long time.⁵ Noting that public trust and confidence is generally essential for governance, the task force nevertheless observed that for nuclear

³Nuclear Waste: Delays in Addressing Environmental Requirements and New Safety Concerns Affect DOE's Waste Isolation Pilot Plant (GAO/T-RCED-91-67, June 13, 1991).

⁴Nuclear Waste: Change in Test Strategy Sound, but DOE Overstated Savings (GAO/RCED-95-44, Dec. 27, 1994).

⁵Earning Public Trust and Confidence: Requisites for Managing Radioactive Wastes, The Secretary of Energy Advisory Board Task Force on Radioactive Waste Management (Nov. 1993).

waste management, public confidence is especially critical because of the period of time over which the task stretches and the ambiguity of what constitutes success or failure. The task force also pointed out that, in the long run, increased trust facilitates management, making it easier to meet deadlines and resolve technical disputes.

In general, we have supported independent review of DOE's nuclear facilities as one way of increasing public confidence in the Department's operation of its facilities. For WIPP, independent oversight would increase public confidence that DOE is taking a course of action to ensure that the facility can be operated safely.

OTHER ISSUES MAY AFFECT DOE'S ABILITY TO OPEN WIPP

The last point I want to make, Mr. Chairman, is that even if WIPP's compliance with EPA's disposal standards is accelerated, there are other issues that DOE must resolve--both at the WIPP facility and at nuclear facilities where transuranic waste is generated and stored--before it can begin significant disposal operations.

As a disposal facility for transuranic waste, WIPP is only one part of DOE's plans for cleaning up its contaminated nuclear facilities. Before WIPP can begin to receive waste from the sites that generate and store it, these sites must undertake several activities, such as

- retrieving waste and putting it in temporary storage areas,
- identifying the constituents of the waste (waste characterization),
- identifying waste that meets the criteria for disposal at WIPP (waste acceptance),
- treating some waste to make it suitable for shipment to WIPP, and
- packing the waste for shipment and loading it onto transport vehicles.

On the basis of the preliminary results of our ongoing review, we have identified issues that could affect the timely and efficient operation of DOE's transuranic waste disposal system. We will be examining these issues and DOE's plans for resolving them in more detail as our work progresses. One issue is whether all of the activities I just mentioned have occurred or will occur on a schedule consistent with DOE's plans for operating WIPP. On the basis of our preliminary work on this issue, it appears that many DOE sites do not have sufficient facilities for storage, retrieval,

characterization, treatment, and packaging. For example, at DOE's Hanford site, six new waste storage and retrieval facilities are planned; however, the schedules for the construction and operation of these facilities are uncertain.

In addition, it is not clear that the facilities that generated "remote-handled" transuranic waste--which is more highly radioactive and, therefore, requires special lead shielding to protect workers and the public--have the capabilities to characterize and package this waste. For example, DOE's Oak Ridge National Laboratory, which accounts for about 90 percent of DOE's inventory of remote-handled transuranic waste, may not have a waste characterization facility operating until 2015. Moreover, because DOE intends to store remote-handled waste in the walls of waste storage rooms and then fill the rooms with other transuranic waste, the timing of the characterization activities at Oak Ridge may have implications for the efficient operation of WIPP.

Also, DOE must have an adequate transportation infrastructure in place. At present, DOE has 15 containers in which to ship the less radioactive transuranic waste. At one time, DOE had expected to purchase and use at least 51 of these containers. In addition, DOE does not have an approved cask for shipping remote-handled waste. The Department will, at some future time, have to select a cask design, obtain the Nuclear Regulatory Commission's certification of the design's safety, and manufacture enough casks to meet its requirements before it will be capable of transporting this type of waste to WIPP.

Finally, overriding all of the above issues is the uncertainty in future budgets for WIPP and, for that matter, for the Department as a whole. DOE expects to reduce its budget by more than \$14 billion over the next 5 years. The account for the Office of Environmental Management, which is responsible for cleaning up DOE's nuclear facilities, would bear roughly a third of this reduction--\$4.4 billion. It is unclear what the precise implications of these or other budget reduction proposals are for the timing of WIPP's operation and for the ability of DOE's nuclear sites to prepare waste for shipment to WIPP. Obviously, tighter future budgets could further restrain DOE's ability to prepare, ship, and dispose of transuranic waste at WIPP at the planned rates.

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Mr. Chairman, this concludes my statement. I will be pleased to respond to any questions that you or Members of the Subcommittee may have.

RELATED GAO PRODUCTS

Nuclear Waste: Change in Test Strategy Sound, but DOE Overstated Savings (GAO/RCED-95-44, Dec. 27, 1994).

Nuclear Waste: Delays in Addressing Environmental Requirements and New Safety Concerns Affect DOE's Waste Isolation Pilot Plant (GAO/T-RCED-91-67, June 13, 1991).

Nuclear Waste: Issues Affecting Land Withdrawal of DOE's Waste Isolation Pilot Project (GAO/T-RCED-91-38, Apr. 16, 1991).

Nuclear Waste: Storage Issues at DOE's Waste Isolation Pilot Plant in New Mexico (GAO/RCED-90-1, Dec. 8, 1989).

Status of the Department of Energy's Waste Isolation Pilot Plant (GAO/T-RCED-89-50, June 12, 1989).

Status of the Department of Energy's Waste Isolation Pilot Plant (GAO/T-RCED-88-63, Sept. 13, 1988).

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