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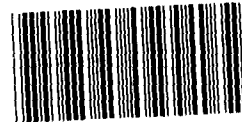
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DOE Should Provide More Information
On Monitored Retrievable Storage

Statement of
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Before the
Subcommittee on Nuclear Regulation
Committee on Environment and Public Works
United States Senate



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SUMMARY STATEMENT OF
 KEITH O. FULTZ
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 DEVELOPMENT DIVISION
 BEFORE THE
 SUBCOMMITTEE ON NUCLEAR REGULATION
 COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
 UNITED STATES SENATE

Mr. Chairman and Members of the Subcommittee:

The Nuclear Waste Policy Act authorized the Department of Energy (DOE) to dispose of commercial spent fuel and other highly radioactive wastes in a geologic repository to be developed for that purpose. The act also required DOE to study long-term waste storage in one or more monitored retrievable storage (MRS) facilities as an option for safe and reliable spent fuel management, and to submit to the Congress a proposal for adding such facilities to the authorized waste system.

DOE submitted its proposal in March 1987, recommending that an MRS facility be built and used to receive, prepare and package, and temporarily store spent fuel until final disposal in a repository. DOE estimates that the facility would add about \$1.5 billion (1986 dollars) to the total cost of the waste management system.

GAO was asked to assess whether the proposal is adequate for an informed congressional decision on the MRS. GAO found that DOE's proposal

- recommends monitored retrievable storage for handling and temporary storage rather than for long-term storage as described in the act;
- does not fully explore alternatives for improving the current waste management system, which does not include an MRS facility, for comparison to the proposed addition of such a facility to the system; and
- does not estimate the full costs of building and operating an MRS facility.

In GAO's view, therefore, the MRS proposal does not provide enough information for the Congress to determine if other improvements to the current waste system can provide many of the perceived benefits of the MRS facility at less cost, or whether the added benefits that DOE sees in the facility outweigh its additional costs.

GAO recommends that DOE identify the best configuration of the current waste system so the Congress can compare it with a system containing an MRS facility, and estimate all costs associated with an MRS facility. GAO also suggests that, in evaluating DOE's proposal, the Congress recognize the difference between the concepts embodied in it and the Nuclear Waste Policy Act.

Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss the Department of Energy's (DOE) proposal to construct and operate a monitored retrievable storage (MRS) facility. This facility would receive spent fuel from commercial nuclear power plants, prepare and package it for disposal, and store it temporarily before finally disposing of it in a mined, geologic repository. My testimony today is based on our report on the Department's proposal prepared at the request of the Subcommittee on Energy and Power, House Committee on Energy and Commerce, and the House Interior and Insular Affairs Committee.¹

We were asked to assess whether DOE's proposal provides the Congress with enough information to make an informed decision on whether to authorize construction and operation of an MRS facility. We did not attempt to determine whether or not building and operating the proposed facility would be in the nation's best interest. Therefore, while we have views on the adequacy of DOE's MRS proposal, we do not have a position on whether the facility should be authorized.

According to DOE's proposal, the MRS would (1) improve development of the waste management system, (2) provide greater system flexibility and reliability, (3) facilitate repository operations, and (4) improve waste transportation. Also, because a repository is not now expected to be operating until 2003, DOE believes the facility is critical to its ability to accept waste for disposal in 1998 as required by its contracts with utilities. Although DOE sees these as benefits to the waste management system, it also recognizes that the facility is not essential to the system. In this regard, DOE has stated that nuclear wastes can be handled, stored, and disposed of safely without an MRS facility.

¹See Nuclear Waste: DOE Should Provide More Information on Monitored Retrievable Storage (GAO/RCED-87-92, June 1, 1987).

DOE estimates that the facility would add about \$1.5 billion (in 1986 dollars) to the waste system. These costs would be paid by utilities from their contributions to the Nuclear Waste Fund. DOE also believes that without the facility utilities could incur additional storage costs of up to \$1 billion.

I would now like to summarize the three basic findings from our evaluation of the MRS proposal. First, DOE's concept of monitored retrievable storage differs from the concept described in the Nuclear Waste Policy Act. Second, its proposal does not fully explore other alternatives to the MRS for improving the waste management system authorized in the act. Third, DOE has not estimated the full costs of an MRS. Therefore, the MRS proposal does not provide all of the information needed to determine whether improvements to the authorized waste system can provide many of the advantages of the MRS at less cost, or whether the benefits of the MRS facility outweigh its costs. Therefore, we recommended that DOE further evaluate alternatives to an MRS facility, use the evaluation results to identify the most effective and efficient configuration of the currently authorized waste system, and estimate all MRS-related costs.

In commenting on a draft of our report, DOE strongly disagreed with our conclusions and recommendations. DOE believes that it has provided adequate information on alternatives for improving the current waste system. DOE also stated that it has estimated all appropriate MRS costs. As I will discuss later, however, we do not agree with the department's position.

DIFFERING CONCEPTS FOR THE MRS

The Nuclear Waste Policy Act authorized DOE to develop a geologic repository for waste disposal, take title to spent fuel at commercial reactors, and transport it to the repository. The act

also discusses an alternative option for managing nuclear wastes--monitored retrievable storage--encompassing long-term storage in a facility that would allow continuous monitoring and easy access. The act states that the Congress and the executive branch should consider a proposal for building one or more facilities for this purpose. It required DOE to study the need for and feasibility of monitored retrievable storage, and to submit to the Congress a proposal for constructing and operating an MRS facility.

In March 1987, DOE submitted its proposal recommending that an MRS facility be constructed near Oak Ridge, Tennessee and used for waste preparation, packaging, and temporary storage of spent fuel. The proposed facility would be capable of storing spent fuel for long periods, but under normal operations the fuel would be stored at the MRS only until DOE could ship it to a repository. In judging the merits of DOE's proposal, we believe that the Congress needs to recognize that DOE's proposal and the MRS concepts embodied in the act differ significantly. Although the act envisions that an MRS be used for long-term storage, DOE is proposing an MRS for handling and temporary storage purposes.

DOE'S ANALYSIS OF MRS ALTERNATIVES IS INCOMPLETE

In our view, for the Congress to make an informed MRS decision it needs information on the benefits and costs of improvements to the current waste system that is comparable to the information on the MRS in DOE's proposal documents. This information would provide a better basis for weighing the costs and benefits of the waste system with an MRS with an improved version of the current waste system. DOE's proposal identifies various alternatives for improving the current system, including measures to expand spent fuel storage capabilities at nuclear plant sites and at a repository site and to improve waste transportation.

DOE concluded that although these alternatives could improve the current system, none of them, either alone or in combination, could provide the benefits achievable with an MRS. In our judgment, however, DOE's conclusion is premature because (1) its assessment of individual alternatives was limited and (2) it did not include an analysis of the effects of combinations of these alternatives on the current waste system as a basis for its conclusion. For example, according to DOE, it did not conduct detailed analyses of some alternatives for improving the current waste system because extensive operating experience with them is lacking. In these cases, DOE's analyses were based primarily on existing information and engineering judgment. Consequently, DOE did not develop designs and plans for many of these potential improvements that were as detailed as those it developed for the proposed MRS facility. Therefore, DOE has not provided information on storage at reactors and transportation technologies that would allow a more thorough evaluation of alternatives for improving the current waste system.

In the area of storage at reactor sites, DOE's proposal does not contain information on (1) utilities' need for an MRS, (2) whether individual utilities would be willing or able to implement improvement alternatives in lieu of an MRS, or (3) how individual utility operations might be affected without the MRS facility. In addition, DOE has not determined if utilities have identified preferable alternatives to an MRS facility.

Likewise, in the area of alternative transportation improvements, DOE did not analyze the costs or determine the effects of each alternative on the current waste system because it has not designed these alternatives in detail. Although DOE's proposal describes the advantages and disadvantages of many potential transportation improvements, it does not compare the benefits and costs of each alternative with the potential benefits and costs of an MRS. For example, DOE did not quantify the number

of shipments or miles that the spent fuel would travel in the current system, with these improvements in place, and then compare the results with a waste system containing an MRS.

Furthermore, DOE has evaluated other concepts for storing and transporting spent fuel under its waste system integration studies being carried out separately from the MRS program. Some of these concepts and technologies might provide improvements similar to those discussed in the MRS proposal. However, DOE did not incorporate the final results of these studies into its MRS proposal. Moreover, other studies and activities covering a wide range of spent fuel storage and transportation topics are underway within DOE. It is possible that these studies may contribute to a better understanding of potential improvements to the current waste system.

Finally, DOE did not determine the net effect that various combinations of transportation, reactor storage, and repository improvement alternatives might have on the current waste system, nor did it determine the most effective combinations of these improvements and how they would affect waste system costs. As I discussed earlier, DOE analyzed the various potential system improvements in terms of how each option, standing alone, might improve the current system. But, DOE'S proposal does not demonstrate the basis for it's judgment that no combination of improvements will provide benefits comparable to an MRS and that the benefits of the MRS are worth its additional cost.

In commenting on our report, DOE stated that more information on alternatives to the MRS is not needed for the Congress to make an informed decision on the MRS. As I have discussed, however, DOE's proposal does not satisfactorily demonstrate how much the waste system that the Congress authorized could be improved to enhance the efficient, effective, and safe management of nuclear wastes. In our view, the Congress needs to be aware of the

consequences of not approving an MRS as well as the implications of authorizing the facility. The Congress needs information, therefore, on the safest, most effective and efficient configuration of the current waste system as a basis for comparison with DOE's proposal to integrate an MRS facility into the waste system. Consequently, we recommended in our report that DOE identify the best configuration of the current waste system and present the Congress with information on the benefits and costs of this system along with those of the MRS. To do this, DOE should collect reliable information from utilities on their need for an MRS and their willingness to implement reactor storage and transportation alternatives to the MRS. DOE should also include the results of completed and ongoing studies of spent fuel storage and transportation concepts.

Now I would like to discuss DOE's MRS cost estimates.

DOE HAS NOT FULLY DEVELOPED MRS COST ESTIMATES

DOE estimates in its proposal that an MRS facility would cost about \$3.2 billion to build and operate for 31 years. Because the facility would permit cost reductions in other parts of the waste system, such as the repository, DOE estimates that the MRS would add about \$1.5 billion to the cost of the waste disposal program. DOE stated in its proposal, however, that its estimates do not include cost elements such as: (1) site acquisition, (2) aid to affected localities for mitigating the impacts of constructing and operating the MRS facility, (3) grants equal to taxes, (4) consultation and cooperation agreements, and (5) federal, state, and local permitting and licensing fees.

In December 1985, DOE's Independent Cost Estimating staff also assessed the costs to construct and operate the MRS. (This is a separate group from the office that prepared the original estimates.) The group's study concluded that DOE may have

underestimated the operating costs of the MRS by 10 to 15 percent. It also stated that DOE's waste office cost estimates did not include all costs of constructing and operating an MRS. The group indicated that several of these items could be of "substantial magnitude" and make the total MRS cost considerably higher than shown in program estimates. These items included the five cost elements listed above, as well as (1) royalties, (2) initial spare parts inventory, and (3) upgrading roads, railroads, and bridges for transport of heavy spent fuel shipping casks.

In our report, we recommended that DOE provide reasonable estimates of all costs associated with an MRS so that the Congress will have some basis for weighing the full costs and benefits of the facility and comparing them with the costs and benefits of the currently authorized waste system. Without a complete cost estimate, it will be difficult for the Congress to make an informed decision on whether the MRS is worth the price that utilities and, in turn, ratepayers are being asked to pay.

In commenting on our report, DOE stated that costs of federal land transfers are not known in advance since transfer circumstances vary widely. However, since DOE has identified proposed sites and the involved federal agencies, we believe it should also be able to provide a reasonable cost estimate. DOE also stated that costs associated with royalties, initial inventory of spare parts, permit and license fees, and consultation and cooperation agreements will not be significant and are included in a construction contingency factor. Although we did not independently estimate these potential costs, the potential exists, in view of DOE's independent cost estimating staff's assessment, that some of these items could be substantial.

DOE also commented that the MRS cost estimate includes costs for connecting the facility to highway and rail lines, and that it is not appropriate to include in the estimate additional costs for

upgrading roads, railroads, and bridges for heavy transport. However, if it becomes necessary to upgrade roads and railroads leading to the facility, and if rail and highway authorities will not pay these additional costs, DOE might have to pay them regardless of whether they are included in the MRS facility cost estimate.

DOE also said it expects costs for taxes and impact assistance to be small, and that it did not include specific amounts in the proposal so they would not be interpreted as a lower limit for purposes of beginning negotiations with state and local governments. Further, DOE believes that the Congress, rather than DOE, should determine some of these costs as a matter of national policy and its judgment on the value of the MRS to the waste system. We are not convinced that payments to state and local governments for taxes and impact assistance will likely be small. On the contrary, because these costs are subject to negotiation they could be significant. Without some reasonable estimate for these elements, the Congress is presented an incomplete picture of what the MRS may ultimately cost.

We agree in principle, however, that the Congress should have some flexibility in determining any MRS-related payments to state and local governments. In addition, we understand why DOE may not wish to estimate state and local payment amounts at this time. Therefore, in lieu of specific estimates, DOE could estimate the effects of a range of potential state and local payments on total system costs until more exact costs can be established through congressional action or negotiations. This approach would provide the Congress with information on the potential effects of state and local payments on MRS cost estimates and, at the same time, give DOE negotiating flexibility.

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In closing, Mr. Chairman, I would like to reemphasize the key message of our report. The Congress has authorized DOE to develop and deploy a specific waste disposal system. It also directed DOE to study and prepare a proposal for long-term storage of spent fuel in one or more monitored retrievable storage facilities. However, DOE has proposed building and operating an MRS facility for waste handling and temporary storage at an additional cost to the waste system.

Although DOE believes that the benefits of the facility are clearly worth its added cost, the Congress must make the final judgment. To permit a fully informed decision, the Congress needs sufficient information to compare the proposed waste system with the best configuration of the current system. The Congress also needs to know the full cost of the proposal on the waste system. As I have just discussed, DOE's proposal does not provide all of this information. Finally, in evaluating the MRS proposal, the Congress should also recognize that the concepts embodied in it and in the Nuclear Waste Policy Act are different.

This concludes my statement, Mr. Chairman. I will be glad to respond to any questions that you and other members of the Subcommittee may have.