

**Statement of Paul M. Golan
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U.S. Department of Energy
Before the
Committee on Environment and Public Works
U.S. Senate**

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Mr. Chairman and members of the Committee, my name is Paul Golan and I am the Acting Director of the Department of Energy (DOE) Office of Civilian Radioactive Waste Management. I appreciate the opportunity to provide the Committee with an update on the Yucca Mountain Project.

Introduction

Over the last 50 years, our Nation has benefited greatly from nuclear energy and the power of the atom, but we have been left with a legacy marked by the generation and accumulation of more than 50,000 metric tons of commercially generated spent nuclear fuel, 2,500 metric tons of DOE spent fuel, and an estimated 20,000 or more canisters of DOE high-level radioactive waste. There is a global consensus that the best, safest, long-term option for dealing with this waste is geologic isolation.

The National Academy of Sciences has generally endorsed the geologic disposal option for high-level waste since 1957. In particular, the National Research Council has stated:

“High-level waste should be put specifically into designed and engineered facilities underground, where the local geology and groundwater conditions have been chosen to

ensure isolation of the waste for tens of thousands of years or longer, and where the waste materials will migrate very slowly if they come into contact with the rock.”

As the Committee knows, there is limited temporary surface storage of waste at 122 sites in 39 States across our Nation. Additionally, 2,000 metric tons of commercial spent nuclear fuel will be generated this year and in every succeeding year by the current fleet of commercial electrical power generating reactors as they supply 20% of our Nation’s electricity. As a result, failure to address the issues of permanent disposal is not an option.

The Nuclear Waste Policy Act, as amended, defined the Federal Government’s responsibility to provide permanent geologic disposal in a repository for all spent nuclear fuel and high-level radioactive waste. In 2002, Congress approved President Bush’s recommendation for development of Yucca Mountain as the Nation’s high-level radioactive waste repository. The President’s recommendation of Yucca Mountain was based on more than 20 years of scientific research, and recognizes that Yucca Mountain will provide a safer and more secure location for the Nation’s nuclear waste than the current temporary surface storage facilities, many of which are located near lakes, rivers, and waterways.

Within the Federal Government, the Department of Energy has the responsibility to construct and operate the Yucca Mountain repository. I will address the following topics today in my opening statement:

- First, a review of actions initiated by the Secretary over the last year and an explanation of the clean-canistered approach and why we believe that path is compelling;
- Second, a discussion of the Proposed Environmental Protection Agency (EPA) Radiation Protection Standard; and
- Third, where the Project is in terms of developing a baseline and schedule.

The Clean-Canistered Approach

In mid-2005 Secretary Bodman directed a thorough review of the Department's overall approach to design, licensing, and operation of the Project to determine if there were better ways to run the repository. His guidance to me was clear: "...make it safer and simpler."

Late last year we announced a redirection to a predominantly **clean-canistered approach to spent fuel operations**. A single canister would be used to transport, age, and dispose of the waste without ever needing to re-open the spent fuel package. While some have been critical of this approach, we believe that the technical challenges can be resolved; and the result will be a simpler, safer, and more reliable operation.

The clean-canistered approach will significantly reduce the risks of radiation exposure and contamination from spent fuel handling operations at the repository. It does this by eliminating the need for at least two massive fuel-handling facilities that are intended to handle individual spent nuclear fuel assemblies several times prior to packaging the waste for disposal. With this plan, the spent nuclear fuel primarily will be packaged for disposal by the utilities that generated the waste. This approach offers the advantage of having those who

know most about the waste - the generators - be responsible for placement in canisters and packaging. We would thus take advantage of commercial reactor sites with existing capability and skills. We will not need to build new equipment and train operators for a capability that already exists in the private sector. We are working with industry to develop the specifications for a canister that can contain commercial spent nuclear fuel after it is discharged from the reactors and cooled. In addition to requiring fewer, cleaner, and simpler surface facilities, the new facility approach should be easier to design, license, build, and operate.

While this approach will have significant short-term and long-term fiscal and safety benefits, it will require additional time to redevelop and revise portions of the license application. Later this summer the Department expects to have a new conceptual design for the surface facilities at Yucca Mountain that support this approach.

Proposed EPA Radiation Protection Standard

On August 22, 2005, the Environmental Protection Agency proposed a revised “Public Health and Environmental Radiation Protection Standard for Yucca Mountain” in response to a decision by the U.S. Court of Appeals for the District of Columbia Circuit which vacated portions of the existing EPA standard. Specifically, EPA proposed a radiological exposure limit for the time of peak dose to the general public during one million years following the disposal of radiological material at the Yucca Mountain site.

The proposed rule retains the existing 10,000-year individual protection standard of 15 mRem/year to the reasonably maximally exposed individual, and supplements it with an additional standard applicable at the time of peak dose. The Department supports this approach. A rule with two compliance periods recognizes the limitations of bounding analyses, the greater uncertainties at the time of peak risk, and the increased uncertainty in calculated results as time and uncertainties increase. Retaining the existing 15 mRem/year standard for the initial 10,000-year period ensures that the repository design will include all prudent steps, including the use of engineered and natural barriers, to minimize offsite doses during the first 10,000 years after disposal. These natural barriers, and to some extent the engineered barriers, will continue to operate throughout the million-year period, keeping exposure levels low, below what people receive today based on where they work or where they live. Importantly, this reflects a level of risk that society normally lives with today, in that the maximum peak dose at Yucca Mountain would be no greater than the average dose a current resident of Denver or similar high altitude location receives in an average year.

Development of a Baseline and Schedule

Although the Yucca Mountain Program had intended to submit a license application to the NRC in December 2004, a number of issues arose that prevented this, including development of the amended draft EPA radiation protection standard as discussed earlier, redesign of the surface facilities to handle primarily canistered waste, and other matters that need to be addressed before we are ready to submit a license application. We believe that submission of our license application should not be driven by artificial dates. We are committed to developing a realistic schedule that will result in the submission of a strong license

application to the NRC. We expect to receive and review our new design this spring and, after its approval by the Secretary, incorporate it into our baseline. Later this summer, we anticipate we will publish our schedule for submittal of the license application to the NRC.

Conclusion

There is a clear national need for Yucca Mountain, even if we could reduce our National electricity consumption by 20% and were able to shut down every commercial reactor and nuclear project in the country today. We are taking steps to ensure that we develop and construct the safest, simplest repository that we possibly can, based on sound science and quality work. I believe that our license application will provide the necessary assurances that we can operate Yucca Mountain in compliance with the performance requirements of the Environmental Protection Agency and the Nuclear Regulatory Commission. We will also demonstrate that our approach to operations will be carefully planned, logical, and methodical.

This completes my prepared statement.