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SECRETARY OF ENERGY

BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
U.S. SENATE

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Mr. Chairman and Members of the Subcommittee, I am pleased to appear before you today. On February 14, I forwarded a recommendation to the President, based on approximately 24 years of federal research, that Yucca Mountain, Nevada, is suitable for development as the nation's geologic repository for spent nuclear fuel and high-level radioactive wastes. The President officially recommended the site to Congress on February 15, and pursuant to the Nuclear Waste Policy Act of 1982 (NWPA), the State of Nevada has exercised a disapproval of the President's recommendation.

I am greatly encouraged that on May 8 the House of Representatives voted, by an overwhelming margin, to pass the Joint Resolution before you today. The expeditious manner in which the House acted, and the wide margin and bipartisan manner by which the Joint Resolution passed, clearly signal this Nation's confidence and readiness to take the next step toward resolving the challenges of permanent waste disposal. Without delay, I ask that the Senate also pass the Joint Resolution, so that the Department may enter the next phase of repository development an expert and independent scientific and technical examination of the safety of the site by the Nuclear Regulatory Commission.

Passing this Joint Resolution, thus overriding the State of Nevada's disapproval, hardly needs emphasis. Twenty years ago, Congress established in law the Federal government's responsibility for the disposal of spent nuclear fuel and high-level radioactive waste. In doing so, Congress foresaw the fundamental national security and energy policy considerations that weigh heavily in favor of proceeding with a geologic repository, and mandated that a repository program be based upon a thorough scientific evaluation of several candidate sites. In 1987, Congress limited that evaluation to the site we consider today: Yucca Mountain.

In formulating this recommendation, I first considered whether sound science supported a determination that the Yucca Mountain site was scientifically and technically suitable for the development of a repository. The scientific evaluation of the Yucca Mountain site had been conducted over a 24-year period; as part of the study, some of the world's best scientists examined every aspect of the natural processes-past, present, and future-that could affect the ability of a repository beneath Yucca Mountain to isolate radionuclides released from any spent fuel and radioactive waste disposed of there.

The Department's scientific inquiries and modeling clearly demonstrate that a repository at Yucca Mountain can meet the Environmental Protection Agency's standards for protecting the health and safety of our citizens. These extremely stringent standards were

based on the recommendations of the National Academy of Sciences. What they mean, in terms of the Yucca Mountain site, is that a person living 11 miles away from the site cannot receive more annual radiation exposure during the 10,000-year regulatory period than a traveler receives today from natural sources in three round trip flights from Las Vegas to New York.

In evaluating whether the repository can comply with the Agency's standards, our scientists employed extremely conservative assumptions and considered the impact of events with extremely low probability of occurrence, all erring on the side of public safety. For example, earthquakes were assumed to occur, and volcanic eruptions were evaluated-even though the likelihood of a volcanic event affecting the repository during the first 10,000 years is just one in 70 million per year. Even with these unlikely events analyzed into the Agency's 10,000 year compliance period, Yucca Mountain still meets the EPA standards.

A review of the documentation that accompanied the recommendation clearly reveals that the Department has carefully evaluated the extent to which Yucca Mountain's substantial natural geologic barriers work in concert with the robust engineered systems. We know that Yucca Mountain is in a closed hydrologic basin, a geologic feature that greatly limits the potential migration of radionuclides. Between the emplacement tunnels and the water table, which is approximately 2000 feet below the surface, the geology provides natural absorption retarding any potential radionuclide movement. The hydrologic features at this site suggest that more than ninety percent of the annual rainfall runs off or is evaporated, meaning less than a half an inch of water travels beneath the surface. Our studies indicate that the vast majority of water samples taken from the mountain are thousands of years old.

Even with this robust geology, our scientists again conservatively considered how engineered barriers 1,000 feet below the surface and 1,000 feet above the water table might corrode by analyzing what would happen during an ice age, if Nevada's climate changed and rainfall increased dramatically. Even including these scenarios, Yucca Mountain still meets the EPA standards.

After thoroughly examining the relevant scientific and technical materials, I have concluded that they demonstrate that the site is scientifically and technically suitable for construction of a repository. As I stated in my recommendation to the President:

"Irrespective of any other considerations, I could not and would not recommend the Yucca Mountain site without having first determined that a repository at Yucca Mountain will bring together the location, natural barriers, and design elements necessary to protect the health and safety of the public, including those Americans living in the immediate vicinity, now and into the future." Having reached this conclusion, I went on to evaluate whether compelling national interests counseled in favor of moving forward with a geologic repository at Yucca Mountain, and if so, whether there were countervailing arguments so strong that I should nonetheless decline to proceed. This evaluation argued strongly in favor of proceeding, and certainly that there was no basis for abandoning the

policy decisions made by the Congress in enacting the 1982 Nuclear Waste Policy Act and the 1987 amendments to that Act. In short, the relevant considerations are as follows.

First, Yucca Mountain is critical to our national security. Today, over forty percent of our Navy's combatant vessels, including aircraft carriers and submarines, are nuclear powered. The additional capabilities that nuclear power brings to these platforms is essential to national security. To maintain operational readiness, we must assure disposal of spent fuel to support refueling of these vessels. We are in the midst of advancing the non-proliferation objectives that have been the welcome result of the end of the Cold War. A geologic repository is an integral part of our disposition plans for surplus weapons grade materials.

Yucca Mountain is an important component of homeland security. More than 161 million people live within 75 miles of one or more nuclear waste sites, all of which were intended to be temporary. We believe that today these sites are safe, but prudence demands we consolidate this waste from widely dispersed, above-ground sites into a deep underground location that can be better protected.

A repository is also important to our nation's energy security. Nuclear power provides 20 percent of the nation's electricity and emits no greenhouse gases. The reactors we have today give us one of the most reliable forms of carbon-free power generation, free from interruptions due to international events and price fluctuations. This nation must develop a permanent, safe, and secure site for disposal of spent nuclear fuel if we are to continue to rely on our 103 operating commercial reactors to provide us with electricity.

And a repository is important to our efforts to protect the environment. A repository is indispensable to implementing an environmentally sound disposition plan for high-level defense wastes, which are located in Colorado, Idaho, South Carolina, New Mexico, New York, Tennessee, and Washington. The Department must move forward and dispose of these materials, which include approximately 100 million gallons of high-level radioactive waste and 2,500 metric tons of defense production spent nuclear fuel.

Finally, I carefully considered the primary arguments against locating a repository at Yucca Mountain. None of these arguments rose to a level that outweighs the case for going forward with the site designation.

Of these, the only one I shall address in my prepared testimony is the concern critics of the project have raised about the “transportation issue.” I wish to address this issue briefly, not because I believe there is any real basis for believing these concerns are warranted, but rather, because I believe that simply by incanting the words "transportation of nuclear waste," opponents are hoping they can incite public fear, without any basis in fact, and that this hope has become the last refuge for opposition to the project. The facts, however, are these.

First, the Nuclear Regulatory Commission, working with the Departments of Transportation and Energy, has overseen approximately 30 years of safe shipment of

spent nuclear fuel in this country. The Department and commercial nuclear industry have substantial experience to date - some 1.6 million miles-- without any harmful radiation release. And the successful and extensive European experience in transporting this type of nuclear material corroborates our experience. The transportation of this material will involve approximately 175 shipments per year, not the 2,800 that the opponents allege. It would also constitute 0.00006% of the annual hazardous material shipments, and 0.006% of the annual radioactive material shipments that occur in this country today.

Second, because the site has not yet been designated, the Department is just beginning to formulate its preliminary thoughts about a transportation plan. There is an eight-year period before any transportation to Yucca Mountain might occur. This will afford ample time to implement a program that builds upon our record of safe and orderly transportation of nuclear materials and makes improvements to it where appropriate. Thus any suggestion that the Department has chosen any particular route or mechanism is completely fictitious -- Those decisions have not been made, and cannot possibly start to be made until the site has been designated and the Department has the opportunity to work with affected States, local governments, and other entities on how to proceed.

Third, even without a repository at Yucca Mountain, the need to find a place to put the spent fuel that is continuing to accumulate will lead to the transportation of these materials, and likely quite soon. On-site storage space is running out and not all utilities can find new adjacent land where they can put this material. Therefore, they will devise ad hoc off-site consolidated storage alternatives. Already a consortium of utilities is working on a facility that they have presented to the NRC. Whether or not this effort ultimately succeeds, it is likely that some similar effort will. Thus the transportation of nuclear materials is not a function of a repository at Yucca Mountain, but rather is a necessary consequence of the material that continues to accumulate at the 131 sites in 39 States that are running out of room for it.

Finally, Yucca Mountain critics argue that nuclear materials in transit could be a terrorist target. But they are forgetting the obvious: spent fuel in secure transit to a permanent repository is certainly less susceptible to terrorist acts than spent fuel stranded at the temporary, stationary sites -- many very close to major cities and waterways -- where it now resides.

Let me close with one last thought. The critics of this program would have Congress overturn the fundamental decisions it legislated 15 years ago - that a single underground repository located at Yucca Mountain holds the greatest promise for the long-term safety and security for the Nation. The great body of scientific work done since then has confirmed the fundamental soundness of the Yucca Mountain site. The only issues remaining are the type that only can be resolved in a Nuclear Regulatory Commission licensing proceeding.

The critics who would upend this path to resolution of the remaining issues have a heavy burden of proof in urging that the policy decision made by Congress in 1987 and the findings of the body of scientific work that examined Yucca Mountain both be

abandoned before the NRC has even had the opportunity to pass on whether a repository can safely be sited there. Given the history and the work to date, their burden would be substantial even if this project were not critical to many important national interests. But it is. Rejection of the proposed resolution would leave the country with no ultimate destination for our spent naval fuel, no adequate path for disposing of our own surplus plutonium, thereby making it hard for us to press other countries to dispose of theirs, and no means to complete the environmental cleanup of our defense complex. Utilities may have to start planning to decommission existing nuclear reactors and figuring out how to replace them. Congress would still have to formulate an alternative in view of the statutory obligation that the Government dispose of commercial spent fuel that was legislated in 1982, but that would be no easy task.

In short, a decision to oppose this project's going forward at this stage is a decision to abandon the repository program and subject the country to these consequences without ever letting neutral experts at the Nuclear Regulatory Commission decide whether that is the right course. Nothing the critics of this project have advanced comes close to meeting the burden of proof they should have to satisfy to warrant proceeding in this fashion. Opposition to nuclear power is not a sufficient ground, since we all, and the United States Government in particular, have an obligation to safely dispose of this waste regardless of any such policy view. Nor are concerns about transportation, for all the reasons outlined above. Rather, opposition to this resolution, and to submitting this question to the NRC, seems warranted only if one is convinced that there is such overwhelming evidence that a repository at Yucca Mountain cannot meet the NRC and EPA standards that it would be a waste of time and money to use the ordinary NRC processes to find out.

Support for the proposed resolution, on the other hand, does not require being convinced that the Department of Energy is right in believing that a repository at Yucca Mountain will meet the applicable standards or that the NRC will decide it should be licensed -- although in my judgment the scientific work to date provides ample basis for reaching that conclusion. Indeed, it doesn't even require being convinced that this outcome is the most likely. Rather, all that is required to support the resolution is to believe there is enough of a serious possibility that $4 billion and 24 years of scientific research have produced a sufficient basis for our conclusion that the site can be safely developed as a repository. That conclusion will then subject the extensive scientific basis for the President's recommendation to objective testing in the only official context it can be -- an NRC licensing proceeding.

I urge the Senate now to act promptly and favorably on the proposed joint resolution, as the House has done so overwhelmingly on May 8. This will allow the Department to proceed with the next stage of addressing the merits of all remaining issues, by applying the independent expertise of the Nuclear Regulatory Commission.