

TESTIMONY OF
ROBERT J. HALSTEAD
ON BEHALF OF THE STATE OF NEVADA
BEFORE THE SUBCOMMITTEE ON ENVIRONMENT AND CLIMATE CHANGE
COMMITTEE ON ENERGY AND COMMERCE
UNITED STATES HOUSE OF REPRESENTATIVES
HEARING ON
“CLEANING UP COMMUNITIES: ENSURING SAFE STORAGE AND DISPOSAL OF SPENT NUCLEAR FUEL”
JUNE 13, 2019

Chairman Tonko, Ranking Member Shimkus, and Members of the Subcommittee, thank you for the opportunity to participate in this hearing on the storage and disposal of spent nuclear fuel. I am Robert J. Halstead, Executive Director of the Nevada Agency for Nuclear Projects. The Agency is part of the Office of Governor Steve Sisolak. The Agency is vested by state law to carry out the duties and responsibilities imposed on the State of Nevada by the Nuclear Waste Policy Act (NWPA), as amended. The Agency’s primary responsibility is to oversee and evaluate the U. S. Department of Energy’s (DOE) programs to characterize, license, construct and operate a geologic repository at the proposed Yucca Mountain site in southern Nevada. I hire and supervise consultants and scientists who oversee DOE’s activities involving the Yucca Mountain site. I have worked in the nuclear waste policy field for 40 years.

Governor Sisolak has stated his position on Yucca Mountain in a letter to the Chairman and Ranking Member of the Energy and Commerce Committee: “The State of Nevada opposes the project based on scientific, technical, and legal merits. I am totally opposed to any legislative effort to restart the Yucca Mountain project. As you and your members know, under the Nuclear Waste Policy Act of 1982, only the governor is empowered to consult with the federal government on matters related to the siting of a nuclear waste repository.” Governor Sisolak’s letter is Attachment 1 to my testimony.

Agency staff and consultants have thoroughly reviewed H.R. 2699, the Nuclear Waste Policy Amendments Act of 2019. Governor Sisolak concludes, based on our analysis, that “H.R. 2699 would do nothing to repair the central failing of the current federal law. In 1987, Congress substituted political science for earth science and selected Yucca Mountain in Nevada as the only site for repository development. H.R. 2699 would not only continue this failed policy; it would seriously weaken Nevada’s

current due process rights to challenge documented safety concerns and adverse environmental impacts in the legally-mandated licensing proceeding.” Our revised comments are Attachment 2.

Yucca Mountain is an unsuitable site for a Geologic Repository

The primary objective of HR. 2699 is to restart the forced siting of a repository at Yucca Mountain by requiring DOE and the U.S. Nuclear Regulatory Commission (NRC) to resume the adjudicatory portion of the NRC licensing proceeding under expedited rules and schedules. The State of Nevada opposes H.R. 2699 because it ignores the facts about Yucca Mountain. The site is unsuitable for a geologic repository because of its geology and hydrology, its proximity to military aircraft training and testing facilities, and its distance from existing mainline railroads. DOE’s license application submitted to the NRC in 2008 cannot overcome the deficiencies of the site.

Nevada’s opposition to DOE’s license application is driven by technical deficiencies in DOE’s repository engineering design. The proposed repository emplacement drifts would be located in fractured rock above the water table and would inevitably leak dangerous radionuclides into the groundwater, where they would be transported to an aquifer. Water from this aquifer is used for a variety of purposes, including drinking water, agriculture, food processing, and Native American religious ceremonies. DOE’s proposed waste packages (the so-called transportation, storage and disposal containers or TADs), a critical element of DOE’s license application, are now obsolete by utility standards. The spent fuel canisters from all U.S. reactors are a different design, and U.S. reactors are not going to adopt DOE’s TAD design. DOE’s proposed thermal loading scheme (intended to drive water away from the waste packages by heating the waste emplacement tunnels to the boiling point of water for a thousand years) has never been demonstrated and cannot be proved in licensing. DOE’s proposed installation of tens of thousands of titanium drip shields (weighing 5 tons each) to protect the waste packages from corrosive infiltrating water relies on yet to be developed technologies, and may not prevent contamination even if perfectly installed. These highly speculative titanium drip shields are estimated to cost \$8 billion to \$20 billion.

DOE will bear a heavy burden of proof in the largest and longest licensing proceeding in the history of the NRC. Moreover, DOE will face extraordinary difficulties obtaining water permits from the State of Nevada for repository construction; obtaining water permits and rights-of-way for construction of a 300 mile railroad across a national monument and active grazing lands; and imposing over flight restrictions

on military aircraft using the airspace above the repository surface facilities and adjacent lands currently used by the US Air Force.

Considering these technical and legal complexities, and the eight year lull in licensing activity, it would take 20-25 years before spent nuclear fuel or high-level radioactive waste could be received at the proposed Yucca Mountain repository. DOE and NRC preparation for resumption of licensing could require 18 months or more; the licensing proceeding for a construction authorization, and expected litigation, could require 96 months or more; construction of facilities and a 300-mile long railroad, licensing for receipt of spent nuclear fuel, and expected litigation, could require 120 months or more. Additional litigation is certain over NRC licensing rules; DOE program implementation; the Environmental Protection Agency (EPA) radiation protection standard; state water permits; railroad alignment selection, right-of-way acquisition and construction; and possibly other matters. These lawsuits could easily add another four to six years.

Nevada's estimates of time required are based on detailed analysis of previous NRC licensing proceedings and related lawsuits. Over these 20-25 years, the restarted repository program would likely require a minimum of \$2 billion in average annual appropriations. Insufficient funding by Congress at any stage of licensing, construction and operational testing would delay the beginning of spent fuel receipt from reactors.

H.R. 2699 fails to honestly address the cost of Yucca Mountain, and fails to provide a workable funding mechanism for the restarted repository program. The Subcommittee's consideration of H.R. 2699 should begin by reviewing repository costs, starting with the DOE 2008 Total System Life Cycle Cost (TSLCC) Analysis and the 2013 DOE Fee Adequacy Report. We estimate the total future cost of Yucca Mountain would be at least \$100 billion in 2019 dollars. Licensing alone would cost \$2 billion over 4 or 5 years. DOE studies prepared between 2010 and 2013 estimated that walking away from Yucca Mountain and constructing a repository in salt or shale could save tens of billions of dollars. The Committees on Appropriations in both houses should require an updated estimate of Yucca Mountain costs, and the estimated costs of constructing repositories in other rock types, with alternative repository designs, before appropriating any new funds for Yucca Mountain licensing.

Stranded Spent Nuclear Fuel at Decommissioned and Decommissioning Reactors

The Subcommittee is considering two bills today that would address the adverse impacts on host communities of stranded spent nuclear fuel at decommissioned and decommissioning reactors.

H.R. 2995, the Spent Fuel Prioritization Act of 2019, and H.R. 3136, the Storage and Transportation of Residual and Excess (STORE) Nuclear Fuel Act of 2019 are both intended to address the growing safety and economic concerns of impacted communities. We have not yet had sufficient time to fully evaluate Section 3, Limitation on Collection of Fees and Section 4, Funding in H.R. 3136. But, our preliminary finding is that these two bills, taken together, would be an important step towards implementing the 2012 Recommendations of the Blue Ribbon Commission on America's Nuclear Future, and the 2018 recommendations of the Western Interstate Energy Board, that removal of spent nuclear fuel from shutdown reactor sites be prioritized.

H.R. 3136 would be more effective than H.R. 2699 in expediting removal of stranded fuel from decommissioned and decommissioning sites. Under H.R. 2699, the Monitored Retrievable Storage (MRS) facility could not receive spent fuel before a final NRC licensing decision approving or disapproving Yucca Mountain. H.R. 2699 retains the 10,000 MTHM capacity limit on MRS spent fuel storage until the repository first accepts spent fuel, and limits MRS capacity to 15,000 MTHM at all times. These MRS conditions would severely limit acceptance of spent fuel from currently decommissioned or decommissioning reactors, and could make MRS development unattractive to private companies.

H.R. 3136, combined with H.R. 2995, would be more effective in expediting removal of stranded fuel than resuming the Yucca Mountain licensing proceeding. The earliest realistic date that the proposed Yucca Mountain repository could receive spent fuel from decommissioned and decommissioning reactors would be 20-25 years from now, if ever. Nevada never stopped preparing for the resumption of licensing. Under the leadership of the Nevada Office of Attorney General, Nevada's legal and technical expert team has been in place since 2010 preparing to adjudicate 218 admitted contentions and to submit 30-50 new contentions using state funds appropriated by the Nevada Legislature. Any effort to speed up the process by imposing time limits on licensing, as proposed in H.R. 2699, would almost certainly backfire, increasing costs, increasing safety disputes, and increasing litigation.

An additional consideration is that the spent fuel at shutdown and soon-to-be-retired reactors is being welded into storage canisters that are not compatible with DOE's Yucca Mountain repository design. The spent fuel inside the canisters currently used for dry storage at U.S. reactor sites would need to be repackaged, or the Yucca Mountain waste package design would need to be changed, or a combination of both actions would be necessary, increasing by years the lead time for acceptance of U.S. reactor spent fuel at Yucca Mountain.

Consent-Based Siting for All Nuclear Waste Storage and Disposal Facilities

The State of Nevada supports H.R. 1544, the Nuclear Waste Informed Consent Act, introduced in March 2019 by Representatives Titus, Horsford, and Lee of Nevada. H.R. 1544 would require a written consent agreement between DOE, the repository host state, affected counties, and affected Indian Tribes, prior to construction of a repository. This would extend consent to the State of Nevada for Yucca Mountain. A companion bill, S. 649, was introduced by Senators Catherine Cortez Masto and Jacky Rosen of Nevada. H.R. 1544 and S. 649 provide a basis for amending other bills to create a workable approach to consent-based siting for all U.S. nuclear waste storage and disposal.

The Nevada Commission on Nuclear Projects recommended this approach in 2017: “In the past two Congresses, the Senate Energy and Natural Resources Committee has drafted comprehensive legislation, entitled the Nuclear Waste Administration Act, to restructure the nation’s nuclear waste program following the BRC recommendations. This legislation is not acceptable to the State of Nevada because it would continue the status quo regarding Yucca Mountain. It would need to be amended along the lines of the Nuclear Waste Informed Consent Act, introduced by the Nevada congressional delegation.”¹

The Nuclear Waste Administration Act of 2019, S. 1234, would create a new waste management organization called the Nuclear Waste Administration (NWA); direct the NWA to establish a consent-based siting process; and calls for operation of a spent nuclear fuel storage pilot facility by December 31, 2025, an interim storage facility for spent nuclear fuel by December 31, 2029, and a geologic repository by December 31, 2052 [page 64, lines 19-24]. These storage and disposal facilities would be regulated by the NRC, subject to standards established by the EPA. S. 1234 could be amended to extend the new consent-based siting process to Nevada regarding Yucca Mountain.

Governor Steve Sisolak concluded his letter with a pledge: “If your committee is truly interested in fixing our nation’s broken nuclear waste program, my staff and I, and Nevada’s congressional delegation, would be happy to meet with you and explore constructive alternatives.” I hope the Subcommittee and the full Committee will consider my testimony today as a first step in fulfilling Nevada’s part of the Governor’s pledge.

¹ http://www.state.nv.us/nucwaste/news2017/pdf/nv2017comm_report_final.pdf [p.27]