

Industry news ▼

It's Official—Yucca Mountain Is a "Suitable" Place for a Spent Fuel/High-Level Waste Repository

On January 10, Energy Secretary Spencer Abraham climaxed almost 20 years of research and study on a possible spent fuel/high-level waste repository in the United States by declaring that Nevada's Yucca Mountain is "scientifically sound and suitable" as a deep burial site. Abraham, in announcing his decision, noted that "there are compelling national interests that require us to complete the siting process and move forward with the development of a repository," including growing public concern about nuclear materials since the September 11 terrorist attacks.

According to provisions of the 1982 Nuclear Waste Policy Act (NWPA), Abraham must wait 30 days after notifying Nevada Gov. Kenny Guinn of his decision before he can forward his recommendation to the President. The President, in turn, has 30 days to accept or reject the recommendation of the energy secretary. If the president favors going ahead with the project, then the Nevada governor has 60 days to veto the project. If the project is vetoed, then the matter goes to Congress.

The official selection does not mean that the site will be open for business any time soon. The U.S. Department of Energy must prepare a license application that will be submitted to the U.S. Nuclear Regulatory Commission, a process that is expected to take a year or two (or more), and then the NRC must review the application and then issue a license, a process that will also take several years. The earliest the facility will open is 2010, and many experts expect that date to slip farther into the future as the licensing work progresses.

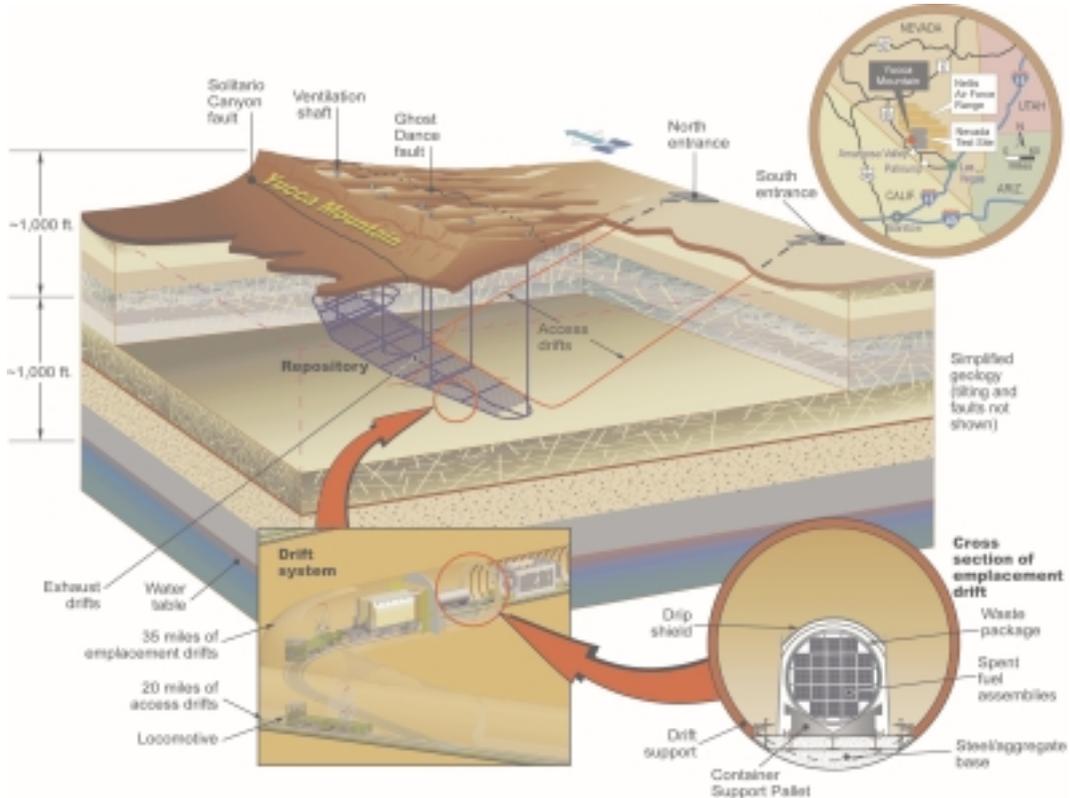
The Yucca Mountain site, located about 90 miles northwest of Las Vegas, Nev., is situated in a mountain range with a unique combination of rock characteristics and an extremely deep water table (800 to 1000 feet below the level of the proposed repository). Following the enactment of the NWPA, it was one of three sites the U.S. Department of Energy was planning to characterize as possible HLW disposal sites. (The other two sites were in the state of Texas and on the Hanford reservation in Washington state.) But in 1987, Congress decided that the expense involved in characterizing three sites would be untenable, so it passed the Nuclear Waste Policy Amendments Act, which declared that the DOE would characterize only one site, and that site would be at Yucca Mountain. Since that time, the mountain has undergone years of study by scientists, engineers, and other nuclear experts from such agencies as the DOE, the U.S. Geological Survey, and the U.S. Environmental Protection Agency.



Energy Secretary Abraham

Praise from ANS

The American Nuclear Society was one of many organizations praising the energy secretary's decision. Stated ANS Vice president/President-Elect Harold B. Ray, "We have confidence that Yucca Mountain is a suitable site, and



Cutout view of the proposed spent fuel/HLW repository at Yucca Mountain

Industry news ▼

we applaud the Department of Energy's recommendation to proceed with the next stage of repository development—the application for a license for repository construction.

“We are confident that the DOE has selected and characterized a site that, with appropriate engineering design and operation, can meet with high confidence the regulatory standard for public health and safety,” Ray continued. “It's clear the time has come for the administration to prepare a license application to the NRC for permission to construct and operate Yucca Mountain. This is an important step for the future of nuclear energy.”



The Yucca Mountain site

Hurdles Ahead

But the project must still negotiate many hurdles ahead of it, most notably opposition from the state of Nevada. “This decision stinks,” noted Guinn, and Nevada Sen. Harry Reid (D) added his opinion that, despite Abraham's assurances, there is “a mountain of evidence that the site is unsuitable” for storing radioactive materials. Just prior to the Abraham announcement, Nevada filed another lawsuit against the project, this one claiming that the DOE changed the rules over the years so that Yucca Mountain could be considered suitable. The suit claims that, under the language of the NWPA, “geologic considerations shall be the primary criteria for selection of sites.” But under DOE guidelines proposed in 1996 (as recommended by the National Academy of Sciences), the suit claims, radioactive containment by “engineered barriers” can be factored in a repository's suitability. “The fundamental principle of geologic isolation is being undermined by DOE's siting guidelines in an attempt to make Yucca Mountain work, despite its blatant geological deficiencies,” stated Guinn.

And Guinn is vowing to pursue any other avenue he can find to oppose the project. “I'll go all the way to the White House,” he has said.

The site, if finally approved and licensed, is expected to hold up to 77 000 tons of spent fuel and defense HLW, buried some 900 ft beneath the surface. This should accommodate all of the spent fuel from the nation's currently operating and decommissioning or decommissioned reactors, as well as the nation's defense HLW.

NRC: Missing Millstone Fuel Rods Likely Buried with Low-Level Waste

Two radioactive fuel rods missing from the Millstone-1 nuclear power plant for at least 20 years were most likely mistaken for other radioactive waste and safely disposed of, investigators from the U.S. Nuclear Regulatory Commission concluded in mid-January. The shutdown plant, and the two operating Millstone-2 and -3 reactors, were purchased by Dominion Resources Inc. last year from Northeast Utilities (NU). In its purchase of the three reactors, Dominion inherited the missing fuel rod problem.

The investigation into the missing fuel rods began in December 2000 after NU conducted an inventory of the plant's spent fuel pool. After extensive searches, neither NU nor Dominion could conclusively determine where the rods might be, although both utilities rejected any possibility that the rods could have been stolen.

The NRC investigation determined that the most probable scenario was that the rods were mistaken for other radioactive material being stored in the spent fuel pool (such as monitoring equipment) and were shipped off for long-term disposal some two decades ago. The shipping containers are buried on arrival and are never opened. And the most likely destinations for the shipments would have been either the Barnwell, S.C., low-level waste burial ground, or the similar LLW disposal site at the Hanford Reservation in Washington state. Operators of the Barnwell site have been refusing to accept any more LLW from Millstone until the rods are located.

It would be up to the states of South Carolina and Washington to determine if they want to dig up the Millstone containers. However, the risks associated with digging up the waste far outweigh the benefits, even if that is the only way to definitively locate the rods.

At press time, the NRC had not decided whether it would sanction or fine Dominion Resources for the lapse in record-keeping and the mishandling of the spent fuel. If there is a fine, Dominion said it would seek compensation from NU.

DOE Rethinking Hanford Tank Waste Cleanup

According to a recent report by *The Energy Daily*, the U.S. Department of Energy is calling for a drastic reduction in the amount of high-level radioactive waste now scheduled for vitrification at the Hanford site. The waste, currently stored in 177 underground tanks at Hanford, has been scheduled to be removed from the tanks, separated into high- and lower-level waste streams, and then vitrified, with the glass logs eventually to be sent to the national underground disposal facility (that is, Yucca Mountain).

But in a November 19 memo, the energy newsletter reports, Jesse Roberson, assistant energy secretary for environmental management, instead calls for cutting the amount of waste destined for vitrification across the en-

Industry news ▼

tire DOE complex by about 75 percent; most of that waste is at Hanford. Instead of vitrification, the memo suggests that the DOE can develop at least two other proven, cost-effective solutions for every HLW stream in the complex. The memo cites an overall goal of decreasing the costs of the cleanup program by \$100 billion and shortening the time need for completion by about 30 years.

The DOE, however, is legally bound by an agreement with the state of Washington and the U.S. Environmental Protection Agency to vitrify the tank wastes. Failure to abide by this agreement could lead to court actions and fines. In addition, many interested parties are skeptical that the DOE can develop "proven, cost-effective solutions" other than vitrification, especially in the shortened time frame.

NRC: Big Rock Concrete Can Go to Landfill

The U.S. Nuclear Regulatory Commission has approved a plan whereby Consumers Energy's Big Rock Point nuclear plant, which is being decommissioned, can use a state landfill for disposal of thousands of tons of non-radioactive or minimally contaminated concrete and other debris stemming from the decommissioning work. The material in question includes concrete, roofing materials, flooring materials, steel, and soil with basically nondetectable radiation levels.

Using the landfill, as opposed to a low-level waste disposal site, will save Consumers Energy millions of dollars. Consumers Energy officials have stated that it will cost between 1 and 10 cents per pound to dispose of the almost 85 million pounds of concrete generated during plant dismantlement in the landfill, compared to a cost of up to \$10 per pound if the utility had been forced to send the material to an LLW burial site.

Private Fuel Storage Earns Favorable NRC Environmental Assessment

Private Fuel Storage, the consortium of eight utilities planning to construct an away-from-reactor spent-fuel storage installation on Native American land in Utah, in January received a favorable environmental assessment of the project from the U.S. Nuclear Commission. The proposed facility is to be built on land owned by the Skull Valley Band of the Goshute Tribe. The environmental assessment is a precursor to the NRC's licensing activities for the facility. License hearings are scheduled to be in April.

The state of Utah is strongly opposed to the facility, however, and the state's governor, Mike Leavitt (R), has vowed to kill the project. Among other stated concerns, Utah fears that the facility, intended to be licensed for an initial 20 years, with the possibility of an additional 20-year extension, will become a de facto permanent facility if the permanent repository proposed to be sited at Yucca Mountain does not open. ■