

DOE Evaluating Options for GTCC Waste

The U.S. Department of Energy is planning to prepare an environmental impact statement (EIS) for disposal of greater-than-Class-C (GTCC) low-level radioactive waste at eight potential sites. GTCC is the most radioactive of the U.S. Nuclear Regulatory Commission's four categories of LLW, and includes activated metals from the maintenance and decommissioning of nuclear power plants, as well as radioactive sealed sources. The DOE's estimate of the total stored and projected quantity of commercial GTCC waste is around 2600 cubic meters. Federal law mandates that the DOE be responsible for all LLW that exceeds the concentration of radionuclides established for Class C waste.

The DOE is evaluating alternatives for GTCC disposal, including a geologic repository, intermediate-depth boreholes, and enhanced near-surface facilities. The eight potential locations for these facilities are:

- Idaho National Laboratory.
- Los Alamos National Laboratory.
- The Waste Isolation Pilot Plant.
- Savannah River Site.
- Oak Ridge Reservation.
- Hanford Site.
- Nevada Test Site.
- Proposed spent fuel repository at Yucca Mountain.

The DOE will also evaluate disposal at generic commercial facilities in arid and humid locations. The scope of the EIS will include DOE-owned or -generated LLW and transuranic waste similar to GTCC that does not have a current path to disposal.

Additional information on the EIS is available on the Internet at www.gtccceis.anl.gov.

PFS, Goshute Tribe Sue Interior Department

Private Fuel Storage LLC (PFS), a consortium of eight nuclear utilities, and the Skull Valley Band of Goshute Indians are suing the U.S. Department of Interior in the U.S. District Court for Utah over Interior's ruling last year that denied PFS a lease and two rights-of-way across federal land, preventing the consortium from beginning construction on a spent fuel storage facility in the Utah desert. According to the suit, those decisions were "arbitrary and capricious," politically motivated, and not in accordance with the law.

PFS received a license from the U.S. Nuclear Regulatory Commission in February 2006 for the away-from-reactor spent fuel facility, and the federal Bureau of In-

dian Affairs had given preliminary approval for the lease years earlier. However, the NRC license was conditional, dependent on favorable rulings from the Interior Department on the lease and rights-of-way. On September 7, 2006, James Cason, associate deputy secretary at Interior, acting on behalf of the secretary, disapproved the lease; on the same day, Chad Calvert, principal deputy assistant secretary for land and minerals management, denied a right-of-way application for land to house a building where containers of spent fuel could be transferred from rail cars to heavy trucks that would then travel to the facility site.

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U.S. Presidential Candidates Weigh in on Yucca Mountain Project

Democratic presidential candidates in the United States are going on record as being against the U.S. Department of Energy's Yucca Mountain Project. The Democratic frontrunner, Sen. Hillary Clinton (New York) called the project "misguided," and the effort to move it forward "both disappointing and irresponsible." The senator said she would push for a hearing by the Senate Environment and Public Works Committee, on which she serves, to pressure the U.S. Environmental Protection Agency to adopt clear radiation standards that would ensure public health and safety. She also called on the DOE to halt the project's license application until the EPA takes action, noting that if nothing is done now to halt the project, it "may be too late" by the time a new president takes office in January 2009.

For his part, Sen. Barack Obama (Illinois) stated that he didn't need any hearings to convince him that the project should not go forward. In his official campaign statement, he said, "After spending billions of dollars on Yuc-

ca Mountain, there are still significant questions about whether nuclear waste can be safely stored there. So, at this time, [I] can't support the Yucca Mountain project and believe we should redirect spending on alternatives, such as improving the safety and security of spent fuel at plant sites around the country. At the same time, we should continue looking for a safe, long-term disposal solution based on sound science."

Senator Joe Biden (Delaware) noted that "I have voted against Yucca Mountain on at least three occasions. I oppose it. It's not stable. . . . Two reasons. No. 1, the transportation is not safe at this point, and No. 2, all the data I have seen about how stable Yucca Mountain is." Asked if he knew of an alternative way to dispose of nuclear waste, Biden said he did not, although he noted that his state, Delaware, is "surrounded on all sides" by nuclear waste.

According to Sen. Christopher Dodd (Connecticut), "The latest studies on this stuff have indicated serious geological issues, transportation issues, and I'm satisfied at this point that it does not make sense. Yucca Mountain is not a good answer to this."

Former Sen. John Edwards (North Carolina) had this to say: “Over time it’s become clear that the science is unreliable. That seems to be now the consensus of the scientific community. There’s also been serious allegations about fraud and misrepresentation in some of the scientific documents, and I’ve also become more concerned over time with the transport of nuclear waste across the country, particularly with what’s happened with the threat of terrorism.” Edwards has also stated that he is against expanding nuclear power.

The official statement by Gov. Bill Richardson of New Mexico reads as follows: “If I’m president, I would terminate it, because I believe it’s unsuitable. When I was [Secretary of Energy] many of my scientists wanted me to declare it suitable and there were significant water problems, there were significant other environmental, scientific problems that we hadn’t worked out. . . . I’d always voted against it in Congress. My record is clear. I don’t have like, two positions, like other candidates.”

As for the Republican frontrunners, only Sen. John McCain (Arizona) has given strong backing to the project: “I think we have to have a place to store the waste. I

think that nuclear power has got to be a vital part of our effort to be independent of foreign oil, and I think it’s [Yucca Mountain] a suitable place for storage.” McCain added that he had not been convinced that the site isn’t safe or that transporting the waste to the site was unduly dangerous.

Former New York City Mayor Rudy Guiliani said, “One of the things you’ve got to be real careful about with nuclear power is you’ve got to make sure it’s really, really safe. Frankly, some of the problems that have occurred with Yucca Mountain are matters of grave concern, so you’d have to take a good look at that.” However, he did not rule out continuing to pursue the repository

And a statement from the campaign office of former Massachusetts Gov. Mitt Romney said: “While nuclear power is one of our most promising avenues for developing energy independence from foreign oil, it also presents obstacles such as how to dispose of spent nuclear fuel. To overcome these obstacles, the governor believes decisions must be made on the basis of sound science and conclusive studies instead of political calculations.”

GAO Questions Quality of Yucca Mountain License Applications; Other Yucca Mountain Updates

The Government Accountability Office (GAO), in a study of the U.S. Department of Energy's Yucca Mountain Project quality assurance program, has concluded that the DOE has made progress in resolving the quality assurance recommendations and challenges identified in a March 2006 GAO report. In its August 2007 report, "DOE Has Improved Its Quality Assurance Program, But Whether Its Application for a NRC License Will Be High Quality Is Unclear," GAO-07-1010, the GAO noted that the DOE has addressed the management challenges identified by the GAO to varying degrees, and has worked to fill and retain personnel in key management positions.

However, the GAO cautioned, the DOE continues to lose key project managers. Furthermore, the report notes, DOE project officials anticipate that changing the project's culture and history of recurring quality assurance problems will take a long time.

The report repeats the U.S. Nuclear Regulatory Commission's position that the Yucca Mountain license appli-

cation, which the DOE states will be submitted by June 30, 2008, must be complete, technical adequate, transparent by clearly justifying underlying assumptions, and traceable back to original source materials. Only if the DOE submits a high-quality license application that meets these criteria will the NRC be able to complete its review within the three- to four-year time frame allotted. To better ensure that the DOE understands its expectations, the report notes, the NRC has held periodic precicensing management and technical meetings with DOE officials that are open to external stakeholders.

The report is available on the Internet at www.gao.gov.

- On August 3, Reps. Fred Upton (R-Mich.) and Ed Towns (D-N.Y.) introduced legislation in the U.S. House of Representatives to enhance the management and disposal of spent nuclear fuel and high-level radioactive waste, while at the same time ensuring the expansion of nuclear power in the United States. The bill would facilitate funding for the licensing and construction phases of the Yucca Mountain project by preventing money paid into the Nuclear Waste Fund for construction of a nuclear waste facility from being diverted into other programs.

In addition, the Renewing Our Commitment to Safe and Clean Power Act (H.R. 3358) would negate the need for the U.S. Nuclear Regulatory Commission, when licensing a new facility, to consider whether there will be sufficient capacity to dispose of spent fuel or HLW from that facility, essentially codifying into law the NRC's waste confidence rule, which says the agency is confident that policies and programs are in place to ensure the safe and secure disposal of spent fuel or HLW and the issue does not have to be considered in individual licensing actions.

To read the bill, go to <http://thomas.loc.gov/> and search by bill number.

- The NRC is not yet hiring specialized staff that will be reviewing the Yucca Mountain license application. The DOE must alert the NRC six months in advance that the license application is coming, and that will be when the NRC begins staffing up, according to NRC Chairman Dale Klein. The agency will be looking for employees with "flexibility," so they can be moved to other assignments if needed.

- Pending the availability of funding, the DOE is proposing a pilot program aimed at testing planned technical and financial assistance to states and Indian Tribes affected by

spent fuel and high-level waste shipments to a repository at Yucca Mountain. Up to six grants, the value of which have not yet been determined, would be issued through such a program; these would provide the states and Tribes with the training needed for safe routine transportation of the spent fuel and HLW, and for dealing with emergency response situations. The proposed program was described in a July 23 *Federal Register* notice; comments are due October 22.

- In June, the DOE announced the release of final performance requirements for the Transportation, Aging and Disposal (TAD) canister for disposal of spent fuel at the proposed Yucca Mountain repository. The announcement noted that the DOE "will shortly initiate procurement for the development of final TAD canister and cask designs. DOE also plans to enter into discussions with nuclear utilities to amend their disposal contract with DOE to facilitate the use of TAD canisters. DOE anticipates that TAD canisters will be available for commercial use as early as 2011 and expects that up to 90 percent of commercial spent nuclear fuel could be placed in TAD canisters, resulting in the need for about 7500 TAD canisters for the proposed repository."

Industry news ▼

- This summer, DOE and state officials in Nevada became embroiled in a court battle over the use of Nevada's water for drilling operations at the Yucca Mountain site. Nevada officials maintain that the DOE has permission to use the state's water only for flushing toilets, fire suppression, dust control, and similar activities for not but scientific investigations at the proposed waste repository. According to the state, however, the DOE is using the water in a borehole drilling project. The state engineer issued a cease-and-desist order on the water use in June, but the state has accused the DOE of ignoring the order.

Japanese Earthquake Hits Nuclear Power Station; Other International Headlines

A July 16 earthquake in Japan that registered 6.8 on the Richter scale caused damage at the Kashiwasaki Kariwa nuclear power station situated close to the quake epicenter. The Tokyo Electric Power Co. plant shut down automatically when the quake hit. A minor amount of radioactive material leaked from the plant for a few days after the quake, and several hundred barrels of low-level waste being stored at the plant tipped over, with lids knocked off some 40 barrels, spilling the contents onto the floor. Other damage at the plant included a transformer fire, broken pipes, and water leaks.

International Atomic Energy Agency inspectors visited the plant in August. The plant is expected to remain closed for at least a year for safety checks and repairs. Nuclear power accounts for about one-third of Japan's electricity.

- On July 29, the United Kingdom's low-level waste repository near Drigg became a stand-alone site license company, operated by LLW Repository Ltd., in preparation for the site management to be taken over by a private contractor. The repository had previously been included in the Sellafield site license. The winner of the competition for a new private sector manager was announced in August (see "It's Business," this issue, page 64), and the new management company will take over next April.

- The Canadian government has accepted the 2005 recommendation if its Nuclear Waste Management Organization (NWMO) that the country's spent nuclear fuel should be disposed of in a deep geological repository, in a retrievable mode, after storage at reactor sites. Earlier this year, NWMO said the repository would probably be in a uranium mining or nuclear power province, and host localities would need to volunteer for the role. With the official government acceptance, the site selection process can now get under way. Some 36 000 tonnes of spent fuel has accumulated thus far in the country, mostly at reactor sites.

- Of 1000 Swiss people questioned in an opinion poll commissioned by Nagra, the Swiss waste management

agency, 85 percent said Swiss radioactive waste should be stored in a repository within Swiss borders. Some 88 percent said security should be the main consideration in repository siting, and 64 percent said they would accept a repository sited in their home region, although two-thirds of those said they would have a "bad feeling" about it.

- Neither Andra, the French nuclear waste management agency, nor the Commissariat à l'Energie Atomique (CEA) is expected to be able to meet the deadlines mandated for waste disposal programs in last year's nuclear waste act, according to a report by France's Scientific Assessment Committee (CNE). In many cases, the CNE said, the deadlines are extremely tight, and doing the scientific work may take longer than the act allows. The CNE also expressed concern about the very large time scales required for a final repository.

- A new report from the United Kingdom's Nuclear Decommissioning Authority focusing on the 100 tonnes of plutonium and 60 000 tonnes of reprocessed and depleted uranium that will be available as of 2012 from the reprocessing of U.K. spent fuel gives three options for treating the material: treating it as waste destined for deep geological disposal; storing it long-term; or using it as fuel (or selling it to others for this purpose). If used as fuel, the energy content of the material is enough to run 3 GWE



Waste drums tumble at Kashiwasaki Kariwa

of new pressurized water reactors for 60 years, or 12 GWE of fast reactors for 700 years.

D&D Updates

- In mid-July, the U.S. Department of Energy announced that it has transferred 4000 acres of land at the Rocky Flats site in Colorado to the Interior Department's U.S. Fish and Wildlife Service for use as a national wildlife refuge. The establishment of the new Rocky Flats National Wildlife Refuge came after DOE and state and federal officials determined that residual levels of contamination on the site do not represent an environmental or health threat. The Fish and Wildlife Service plans to open trails and a visitor center at the site at a future time. The DOE remains in control of some 1300 acres in the center of the site for long-term monitoring and maintenance of two closed burial sites as well as for monitoring of soil and groundwater contamination.
- In late July, a mix of radioactive and hazardous chemical waste leaked onto the ground as it was being pumped between underground tanks at the Hanford site. No

workers were contaminated, and the waste did not become airborne. The leak occurred at the transfer pump above Tank S-102, one of the single-shell tanks at the site being emptied into a newer double shell tank. The spill totaled between 50 and 100 gallons.

- The U.S. Department of Energy, Washington Savannah River Co., and the South Carolina Department of Health and Environmental Control have reached an agreement with several environmental groups and other petitioners, including the Natural Resources Defense Council and the Sierra Club, over their challenge to the modified permit for the Saltstone Disposal Facility at the Savannah River Site. The agreement will allow the DOE to resume interim salt waste processing, which had been suspended in March 2007. In return, the DOE has agreed to certain design features for future Saltstone disposal cells, including a watertight design, two liners, and a thick concrete bottom beneath each cell. The DOE further agreed to make information available on a public website on the composition of salt waste, the grout used to treat the waste, and the saltstone, and to provide the petitioners with performance assessment, saltstone performance and durability information, and waste characterization data. ■