

Yucca Mountain Project: Frozen in Place

The U.S. Nuclear Regulatory Commission has shuttered its review of the U.S. Department of Energy's license application for the Yucca Mountain spent nuclear fuel and high-level radioactive waste repository. The commissioners themselves ordered staff to finish off any work currently in progress by September 30—the end of the 2011 fiscal year.

Thus, the DOE license application remains active on the NRC books, but neither the NRC nor the DOE will be doing any work on the project. The action does, however, leave room for a future administration to reopen the project—a possibility that the Obama Administration had hoped to prevent by having the DOE withdraw the application “with prejudice.” An Atomic Safety and Licensing Board (ASLB) later ruled that the DOE could not, under law, withdraw the license application and that any efforts to officially cancel the Yucca Mountain project must come from Congress.

The commissioners were “evenly divided” on a vote to accept the ASLB decision, and while that meant that the ASLB decision stands, a lack of funding from Congress for the license review basically took the decision on whether or not to continue out of the commissioners' hands.

Just prior to the project's shutdown, the NRC issued the final Yucca Mountain Technical Evaluation Report (TER). In addition, the NRC's Office of Nuclear Material Safety and Safeguards and its contractor, the Center for Nuclear Waste Regulatory Analyses, have developed 46 reports intended to capture important technical regulatory information, insights, and lessons learned from more than 25 years of work during the pre-licensing and licensing phases of the project. The reports cover scientific and engineering topics such as lava flow cooling processes, corrosion of Alloy 22 and titanium drip shields, and interactions between magma and waste containers.

The NRC has also terminated its lease for the Las Vegas Hearing Facility in Las Vegas and has transferred equipment to other NRC or federal government locations (or donated them to local schools). The ASLB has terminated operation of the Licensing Support Network (LSN), an online data base of documents related to the Yucca Mountain project. The LSN has been fully decommissioned.

The NRC decision to freeze the Yucca Mountain project can be considered a political victory for Nevada Sen. Harry Reid (D), who has vigorously opposed the Yucca Mountain project for some 20 years. Reid is currently the Senate majority leader. Ironically, shortly before the shutdown decision, the American Nuclear Society had issued a statement calling for the NRC to complete its review of the license application, stating that failure to judge the Yucca Mountain license application on its merits “would be a triumph of shortsighted politics over science.”

Vermont Yankee Future Now in Judge's Hands

The future of the Vermont Yankee nuclear power plant now rests in the hands of Judge J. Garvan Murtha, of the U.S. District Court for the District of Vermont. A three-day trial held in mid-September pitted Entergy Corp., which owns and operates the plant, against the state of Vermont, whose legislators have voted not to allow the plant to renew its operating license beyond the initial 40-year operating term, which expires in March 2012. The U.S. Nuclear Regulatory Commission has already renewed the plant's license, allowing another 20 years of operation. Vermont is the only state in the union whose legislature has veto power over the continued operation of a nuclear power plant.

Entergy argued that the legislature voted against the license renewal because of reasons of safety (the plant had tritium leaks last year, which Entergy has addressed to the satisfaction of the NRC), and that by law, only the federal government—that is, the federal regulator, the NRC—can rule on plant safety. Vermont argued that it wants to shut the plant down for reasons of economics and energy diversity.

Another issue between the state and the utility, though not addressed during the trial, is whether, if Vermont does succeed in shutting the plant down, Entergy will immediately begin decommissioning the plant (the state's preference) or place it in SAFSTOR to allow the decommissioning fund to grow.

The judge is expected to rule on the license renewal by the end of this year or early 2012, in plenty of time to allow appeals before the March deadline.

● In related news, a September 20 fire at Entergy's corporate office in Brattleboro, Vt., was determined to be caused

by arson. The office is used as an emergency communications center for Vermont Yankee, which is located only seven miles away. Plant operations were not affected by the fire. The Vermont State Police Arson Unit and the Brattleboro Police Department are investigating.

East Coast Earthquake Shifts North Anna Spent Fuel Casks

The August 23 earthquake that was centered in Mineral, Va., caused damage to the Washington Monument and the National Cathedral in Washington, D.C., shut down the North Anna nuclear power plant (some 15 miles away from the epicenter), and shifted 25 spent fuel storage casks on their concrete pad at the North Anna plant.

The 120-ton TN-32 vertical casks, designed by Transnuclear, moved between 1 inch and 4.5 inches during the earthquake but remained upright and intact, according to a North Anna spokesman. The casks' connections to monitors were maintained, and no alarms sounded. The horizontal Nuhoms storage system, also used at North Anna, did not experience any shifting.

As of early September, the U.S. Nuclear Regulatory Commission had not decided whether the casks must be moved back into regulatory compliance position. The agency said there were no immediate safety concerns with the casks.

Good News, Sad News About WIPP

● URS Washington TRU Solutions LLC (WTS), operations contractor for the U.S. Department of Energy's Waste Isolation Pilot Plant, has received the Safe Operator of the Year Award from the New Mexico Mining Association (NMMA) and the NM State Bureau of Mine Safety. WTS has been a recipient of NMMA's top safety award for 23 of the past 25 years. The competition is based on an evaluation of the injury rate between July 2010 and June 2011. By the end of August 2011, WTS employees had also worked 3.6 million safe hours without an injury causing days away from work.

● Dorothee Mühl, deputy director general manager of German's Federal Ministry of Economics and Technology, visited the Waste Isolation Pilot Plant in mid-September, along with other German officials, and signed a Memorandum of Understanding agreeing to an exchange of knowledge between the United States and Germany on matters related to radioactive waste disposal. Representatives from URS Washington TRU Solutions LLC, Sandia National Laboratories, and Los Alamos National Laboratory joined Mühl and the DOE Carlsbad Field Office in signing the agreement. WIPP has long been seen as a model for underground radioactive waste disposal, but in-

ternational interest in the project has increased over the past few years.

● In late September, the U.S. Department of Energy's Waste Isolation Pilot Plant received its 10 000th shipment of transuranic (TRU) waste. The shipment, which consisted of defense-generated contact-handled TRU waste, arrived at WIPP on September 24, coming from the DOE's Advanced mixed Waste Treatment Project in Idaho. WIPP's first shipment came from Los Alamos National Laboratory on March 26, 1999. By the end of calendar year, legacy TRU waste at two-thirds of the original waste sites will be dispositioned at WIPP.

● Also in late September, Washington TRU Solutions LLC (WTS) announced the second phase of a workforce restructuring plan at the Waste Isolation Pilot Plant. Earlier in the year, 51 WTS employees voluntarily separated from the company, with benefits, under the first phase of the workforce restructuring plan. It is expected that approximately 65 WTS and contingent staffing employees will be involuntarily separated from the company as part of phase two of the plan. Subcontract personnel are also expected to be affected. Additional workforce restructuring is necessary, WTS said, because American Recovery and Reinvestment Act funding ended on September 30 and WIPP's projected fiscal year 2012 budget is expected to be the lowest in eight years.

D&D Updates

● The U.S. Department of Energy's Environmental Management office at the Oak Ridge, Tenn., site has completed its largest demolition project yet: by the end of September, the K-33 building, a former gaseous diffusion uranium enrichment facility that covered 32 acres, had been demolished. The American Recovery and Reinvestment Act paid for the \$51 million project. Some 164 000 tons of steel and concrete, in 13 000 shipments, were disposed at the site's Environmental Management Waste Management Facility (EMWMF). Debris from the demolition work at the K-35 building is also being shipped to the EMWMF.

● Work is under way to tear down 14 support buildings that surround the shutdown Fast Flux Test Facility (FFTF) at the U.S. Department of Energy's Hanford Site. After these buildings are torn down, about 50 structures will remain near the FFTF; some of these are still in use, including a fire stations and maintenance buildings now used for other Hanford work. The bulk of the debris will be sent to the Hanford Site's Environmental Restoration Disposal Facility.

● Since the end of March, 18 million pounds of trash and materials have been removed from closed buildings on the U.S. Department of Energy's Piketon site. The cleanup project received \$118 million through the American Re-

covery and Reinvestment Act, and an additional \$3.3 million was awarded to the project by the DOE in July.

● In September, Washington Closure Hanford and subcontractor employees working on the River Corridor Closure Project at the U.S. Department of Energy's Hanford Site clocked 5 million hours without a lost work day injury—for the first time since the project started in August 2005. More than 1350 Washington Closure and subcontractor employees work on the cleanup project. It took the team about two years to reach the 5-million-hour milestone.

● In September, the U.S. Department of Energy successfully completed cleanup of all Cold War legacy transuranic (TRU) waste at the Bettis Atomic Power Laboratory (BAPL) near Pittsburgh, Pa., permanently disposing of it at the Waste Isolation Pilot Plant. And by early October, all legacy contact-handled TRU waste had been removed from Argonne National Laboratory, near Chicago, Ill. BAPL was the 20th site to be completely cleaned of legacy TRU waste, with the help of a \$640 000 grant from the American Recovery and Reinvestment Act. The TRU waste at BAPL was generated as part of the Naval Nu-

clear Propulsion Program, a joint U.S. Navy-DOE program responsible for the research, design, construction, operations, and maintenance of U.S. nuclear-powered warships. As for Argonne, the DOE removed a total of 112 shipments of TRU waste from that site. However, additional shipments of newly generated remote-handled and contact-handled TRU waste are expected from Argonne over the next year.

This past summer, TRU waste cleanup was also completed at Nuclear Radiation Development LLC, a commercial facility that supported historic DOE missions near Grand Island, N.Y., and at the Lawrence Berkeley National Laboratory in Berkeley, Calif.

● In late September, the U.S. Nuclear Regulatory Commission announced that it has approved the plan by the United States Environment Corp. (USEC) to return the remainder of the Portsmouth Gaseous Diffusion Plant to the regulatory control of the U.S. Department of Energy and to terminate the NRC's Certificate of Compliance for the plant. The Portsmouth plant, located near Piquette, Ohio, was a DOE-owned uranium enrichment plant that was transferred to USEC when the company was



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created and later privatized in the 1990s. USEC terminated enrichment operations in 2001 and has maintained the plant in cold standby since. In September 2010, USEC transferred the main process buildings back to DOE control. As part of the current certificate termination, USEC will transfer the remainder of the facility to the DOE, and NRC regulation of the facility will no longer be necessary. Limited cleanup activities have been under way at the site since the 1990s. The DOE has awarded a \$2.1 billion contract to Fluor Corp. and Babcock and Wilcox for the next stage of decommissioning, which will involve decontamination and demolition of the three massive process buildings, plus cleanup of contaminated soils and groundwater.

- The U.S. Environmental Protection Agency has announced a plan to clean up the Northeast Church Rock Mine, a uranium mine located on Navajo land. The mine was operated by United Nuclear Corp. between 1967 and 1982. It adjoins a uranium mill site. The cleanup effort will involve the removal of some 1.4 million tonnes of radium- and uranium-contaminated soil, which will be placed in a lined, capped facility. The cleanup will ultimately allow unrestricted surface use of the mine site for grazing and housing. Previous cleanup efforts resulted in the removal and reconstruction of one building and the removal of more than 40 000 tonnes of contaminated soil. Navajo land extends over 27 000 square miles in southeastern Utah, northwestern New Mexico, and northeastern Arizona. It is the largest land area assigned primarily to a Native American jurisdiction within the United States.

International Briefs

- The International Atomic Energy Agency will be assisting Japan in its efforts to decontaminate the area around Fukushima Daiichi so that residents living within the evacuation zone can return to their homes. Japanese authorities want to begin decontaminating the areas with the highest dose rates, reducing these to no more than 20 millisieverts per year. (One millisievert equals 100 millirem.) For areas where the dose rate is already below that, the goal is to reduce the dose rate to 1 millisievert per year. The efforts will focus first on homes, schools, and places where children play. Dose rates for decontamination workers will be limited to 20 millisieverts per year (the

same dose rate as allowed for nuclear workers). No timeline has been set for the cleanup.

In the meantime, in late September, the temperatures at the bottom of the reactor pressure vessels of the three damaged units at Fukushima Daiichi (Units 1, 2, and 3) were recorded as being below 100 °C for the first time since the March 11 accident triggered by an earthquake and resulting tsunami. At press time, Tokyo Electric Power was on target to get the units to cold shutdown by the end of the year.

- One worker was killed and four more were injured in an explosion at a French nuclear waste treatment installation on September 12. An explosion in a furnace at the Centrac facility (near Marcoule), used to prepare contaminated metal for disposal, led to a fire, but there were no releases of radioactivity outside of the installation. The facility is operated by Socodei, a 100 percent subsidiary of EDF, the French nuclear utility. EDF originally estimated the level of radioactivity in the furnace at 63 000 becquerels; however, it was later revealed that some 4 tonnes of metal with 30 million becquerels of radioactive were in the melting furnace at the time of the accident. EDF has launched an investigation into the incident, as has the French nuclear regulatory authority.

- Sweden's SKB International will be reviewing the safety of Lithuania's interim spent fuel storage project under a contract with the European Bank for Reconstruction and Development. The facility is being built by Nukem and GNS, and GNS is also supplying the casks. Local citizens have questioned the safety of the casks and of the 30-year-old crane that will be used to move the loaded casks into the storage facility.

- Fuel is being retrieved from a 60-year-old storage pond at Sellafield for the first time since the 1960s. In late September, in a major step toward pond decommissioning, Sellafield Ltd. began removing fuel from the Pile Fuel Storage Pond (PFSP), the first nuclear fuel storage pond constructed at Sellafield and still the largest open air nuclear storage pond in the world. The pond was built to store nuclear fuel and isotopes from the Windscale Reactors, which produced materials for the U.K. defense industry. The PFSP contains more than 15 000 cubic meters of radioactive water, more than 300 cubic meters of sludge, various nuclear wastes, and legacy spent nuclear fuel, stored on what were originally 180 metal skips in the pond. The pond poses one of the most challenging decommissioning projects at the Sellafield site. ■