DOE Certifies Document Collection for LSN

On October 19, the U.S. Department of Energy certified its document collection for the U.S. Nuclear Regulatory Commission's electronic Licensing Support Network (LSN), further advancing the Yucca Mountain repository licensing process. The DOE made electronically available on the NRC LSN more than 3.5 million documents, estimated to exceed 30 million pages. The DOE is required to certify its LSN document collection prior to submitting its license application to the NRC for authorization to construct the Yucca Mountain repository.

The LSN was established by the NRC to support the licensing proceeding for the Yucca Mountain repository. The LSN is a web-based information system that enables the public to review documentary materials related to the DOE's license application for the nation's first spent nuclear fuel and high-level radioactive waste repository, to be located at Yucca Mountain, Nevada. The DOE plans to submit its license application by June 30, 2008, and will continue to add documentary material to its LSN document collection.

The certification represents a significant milestone on the path to the DOE's submittal of a high-quality license application to the NRC. The NRC's Licensing Support Network is available at http://www.lsnnet.gov.

Court: DOE Can Drill Boreholes at Yucca Mountain

The state of Nevada has the right to restrict the U.S. Department of Energy's use of the state's water in drilling work at the Yucca Mountain site, U.S. District Court Judge Roger Hunt ruled in early September, but that ruling did not mean that the DOE had to stop all borehole drilling, he clarified later in the month. The judge also urged attorneys for both parties to try to resolve the matter out of court. Nevada, opposed to the DOE's proposed high-level waste/spent fuel repository at Yucca Mountain, had hoped that by restricting the department's use of the state's water, it could force the DOE to stop all drilling work at the site. The DOE is using boreholes for seismic and geologic analysis work.

NRC To Revisit Waste Confidence Rule

With the nation's utilities announcing plans for more than 30 new nuclear power reactors, the U.S. Nuclear Regulatory Commission has decided to revisit the waste confidence rule. The rule represents a regulatory determination that the NRC is confident that policies and programs are in place to ensure the safe and secure disposal of spent nuclear fuel and high-level radioactive waste. Because of the waste confidence rule, the issue of spent fuel storage and disposal following plant operations does not have to be considered in individual licensing actions.

The Nuclear Energy Institute, a nuclear industry group, has told the NRC that a rulemaking to modify the bases for a waste confidence finding is among the industry's highest priorities and has encouraged the agency to adopt an expedited schedule for the proceeding. The license renewals of currently operating plants and the new projects proposed for licensing are expected to produce spent fuel greatly in excess of the 70 000 metric tons of uranium (MTU) legislated limit of the proposed Yucca Mountain repository. This warrants reevaluation of the bases underlying the NRC's 1990 determination of confidence, according to NEI Chief Nuclear Officer Marvin Fertel.

GNEP Membership Expands to 16 Countries

Some 38 countries attended a top-level meeting on the U.S.'s Global Nuclear Energy Partnership (GNEP) program, held in Vienna, Austria, in September, just prior to the International Atomic Energy Agency's General Conference. Sixteen of those countries are now full members of the initiative.

China, France, Japan, and Russia became members at the first ministerial meeting last May. At the September meeting, Australia, Bulgaria, Ghana, Hungary, Jordan, Kazakhstan, Lithuania, Poland, Romania, Slovenia, and Ukraine also joined. The final member is the United States, where the project originated.

Under GNEP, fuel cycle nations would provide assured supplies of nuclear fuel to client nations, which would use the fuel to generate electricity before returning the spent fuel to the supplier nation. The returned fuel would undergo advanced reprocessing so that the uranium and plutonium contained therein could be recycled in advanced nuclear power reactors.

NRC: No Significant Environmental Impact from Diablo Canyon ISFSI

In late August, the U.S. Nuclear Regulatory Commission issued a final supplemental environmental impact assessment for an independent spent fuel storage installation (ISFSI) under construction at the Diablo Canyon nuclear power station in California. The agency concluded that "construction, operation, and decommissioning of the facility will not result in a significant impact on the

human environment, even when potential terrorist attacks are considered."

The agency noted that the likelihood of a terrorist attack on the facility that would result in a substantial radiological release was "very low," but that even if such an attack were to occur, for most scenarios the hypothetical dose would range from substantially below 5 rem to no release at all. Five rem is the regulatory dose limit for persons outside the boundary of a spent fuel storage facility to receive from accidents.

D&D Updates

- The Calder Hall cooling towers on the Sellafield site in Cumbria, United Kingdom, were successfully demolished by explosive devices at the end of September. Debris from the towers will be recovered, processed, and used to fill in the voids of the cooling ponds beneath the towers, making the site available for reuse in the future. Calder Hall, the world's first commercial nuclear power station, was opened by Queen Elizabeth II in 1956. After nearly 50 years in service, it was shut down in 2003.

Other decommissioning activities at the plant, however, have been deferred, including reactor defueling, Sellafield Ltd. announced at the end of August.

- In August, the U.S. Nuclear Regulatory Commission approved the release of the majority of the former Yankee Rowe nuclear power plant site. The only areas remaining under NRC license are associated with the plant's spent fuel storage pad. The spent fuel facility has 15 canisters of spent fuel and one canister of greater than Class C low-level waste.
- Rigorous startup testing and cold runs at the Savannah River Site's Actinide Removal Process (ARP) and Modular Caustic Side Solvent Extraction Unit (MCU) were completed at the end of summer. ARP and MCU are two process components at SRS known as the Interim Salt Disposition Processing system. They are scheduled to begin the processing of radioactive solutions in spring 2008 as part of a two-step, integrated approach to decontaminate more than 5 million gallons of radioactive salt waste. ARP will remove long-lived radioactive particles from radioactive salt solutions. These particles will then be transferred to the Defense Waste Processing Facility (DWPF) for vitrification. The remaining filtered salt solution will then be sent to MCU, which will take the solution and divide it into two waste streams. The cesium will be removed and sent to DWPF for vitrification, and the remaining decontaminated salt waste solution will be sent to the Saltstone Processing Facility to be mixed with cementitious materials to form a grout for safe, permanent disposal in engineered vaults.

ARP and MCU will operate until 2012, when the Salt Waste Processing Facility (SWPF) is expected to be complete (construction on that facility was authorized in late September 2007). SWPF will use processes similar to those found within ARP and MCU, but on a larger scale.

ARP and MCU will operate until 2012, when the Salt Waste Processing Facility is expected to be complete.

Lessons learned from ARP and MCU processing experience will be considered and factored into the final design of the SWPF.

International Briefs

- At the end of September, the Royal Society, the United Kingdom's national academy of science, published a report urging the U.K. government to develop a strategy for the long-term use or disposal of the country's stockpile of civilian separated plutonium, most of it the by-product of reprocessing of spent fuel from the U.K.'s commercial nuclear power plants. The stockpile totals more than 100 tonnes, by far the largest civilian separated plutonium stockpile in the world, the Royal Society said.

The optimum solution, the society said, would be to convert it to mixed oxide (MOX) fuel for the Sizewell B pressurized water reactor or for new plants that might be constructed in the country. For the long term, the best option for disposing of the stockpile would be deep geologic disposal in the form of spent fuel or, less ideally, MOX pellets. However, final disposal sites might not be ready in the U.K. until 2075, so an interim solution needs to be developed, the report concluded.

- In late 2008, Sellafield will begin shipping high-level waste remaining from spent fuel reprocessing back to Japanese utilities. The shipments were originally scheduled to begin in 2006. It is estimated that it will take eight years to return all the Japanese HLW, which has been vitrified into a borosilicate glass matrix. The HLW returned to Japan is expected to be supplemented with an additional amount of HLW in lieu of intermediate- and low-level waste also produced during the reprocessing operations. U.K. government policy permits low-level radioactive wastes from reprocessing to be retained in the United Kingdom as long as a radiologically equivalent amount of HLW is returned to an overseas customer. One of the benefits of such waste substitution is the reduction in the number of transports required. ■