WCS Receives LLW, Hazardous Waste Permits

In early January, Waste Control Specialists LLC received notification that a permit had been issued for the disposal of hazardous waste at the proposed federal waste facility located in Andrews County, Tex.

Then, on January 14, the Texas Commission on Environmental Quality commissioners issued a final LLW license. The combination of the hazardous waste permit and the LLW disposal license "will allow WCS to safely dispose of a wide range of hazardous and radioactive wastes in the federal waste facility," said company President Rodney A. Baltzer. WCS expects to be able to begin taking LLW for disposal in July 2010.

DOE Reports to Congress on Interim Storage, Second Repository

In December, the U.S. Department of Energy released two long-awaited reports—*Report to Congress on the Demonstration of the Interim Storage of Spent Nuclear Fuel from Decommissioned Nuclear Power Reactor Sites* (DOE/RW-0596) and *The Report to the President and Congress by the Secretary of Energy on the Need for a Second Repository.*

The report on interim storage discusses the status of the commercial spent fuel inventory in the U.S., at both decommissioned and operating commercial nuclear power reactor sites; summarizes the contractual arrangement the government and utilities have under the Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste, related litigation, and the financial liabilities resulting from the DOE's delay in performance under these contracts; provides a history of interim storage policy as it relates to commercial spent fuel in the U.S.; and identifies legislative changes and actions that would be necessary for the department to develop an interim storage facility and demonstration program for commercial spent fuel from the decommissioned reactor sites.

In the report, the DOE concludes that under current law, the department has no authority to accept spent fuel

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from decommissioned commercial nuclear power reactor sites for interim storage. "The Department has concluded that, without legislation, a demonstration project accepting spent nuclear fuel from decommissioned nuclear reactor sites could not be completed in the near term and would not reduce taxpayer costs for waste disposal," stated Ward Sproat, then director of the DOE's Office of Civilian Radioactive Waste Management.

As for the report on the second repository, "Unless Congress raises or eliminates the current statutory capacity limit of 70 000 metric tons of heavy metal [MTHM], a second repository will be needed," said Energy Secretary Samuel W. Bodman. "The statutory limit is not based on any technical considerations, and the repository layout at Yucca Mountain can be expanded to accommodate three times the amount of fuel allowed under the current arbitrary cap." According to the DOE, the inventories of commercial and government spent fuel and HLW in the United States are currently projected to exceed 70 000 MTHM by 2010. Assuming all existing operating commercial nuclear reactors in the U.S. request license extensions from the U.S. Nuclear Regulatory Commission to operate for 60 years, the projected amount of spent fuel from these reactors requiring disposal is estimated to be approximately 130 000 MTHM.

- The Nuclear Energy Institute, an industry group, stated that the DOE's narrow view of interim storage "misses both the strategic value and the feasibility of central interim storage as part of an integrated management strategy" for spent fuel. The NEI disagrees with the DOE's conclusion that legislation would be needed to pursue interim storage. "DOE could contract for services at private storage facilities to meet its legal and contractual obligations to take [spent] fuel from commercial reactors, especially those that have been decommissioned," stated Steve Kraft, NEI's senior director of used fuel management. "Such storage would provide the time needed to develop advanced recycling technologies and facilities, as well as the geologic repository for material that cannot be recycled, while demonstrating the nation's ability to begin safe central management and movement of used nuclear fuel."

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Nobel Laureate Steven Chu Confirmed as Secretary of Energy

President Barack Obama nominated Steven Chu, director of the Lawrence Berkeley National Laboratory, to be Secretary of Energy, and the U.S. Senate confirmed the nomination on January 20. Chu, with two other scientists, shared the 1997 Nobel Prize in Physics for work in the development of methods to cool and trap atoms with laser light. Chu is known as an advocate of renewable energy sources, particularly biofuels and solar, and is considered an expert in global climate change.

Chu has been director of Lawrence Berkeley National Laboratory since 2004; he is also a professor of physics at the University of California at Berkeley. Before his Berkeley assignment, Chu was a professor of physics at Stanford University.

As energy secretary, Chu heads a department with a $25 billion budget, 14 000 employees, and more than 190 000 contract workers. Two-thirds of the DOE budget involves activities related to nuclear weapons research and maintenance.

DOE Seeks Comments on Yucca Mountain Transportation Plan

In mid-January, the U.S. Department of Energy's Office of Civilian Radioactive Waste Management (OCRWM) released the *National Transportation Plan,* which outlines the DOE's current strategy and planning for developing and implementing a system to ship spent fuel and high-level waste safely and securely from where the material is generated or stored to the proposed repository at Yucca Mountain, Nev. Ward Sproat, then OCRWM director, said that actual shipments are not expected to begin before 2020.

The plan is available on the OCRWM website at www.ocrwm.doe.gov. Comments are due by April 30, 2009.

WIPP Upgrades Undertaken at Year's End

The U.S. Department of Energy's Carlsbad Field Office has performed some of the most extensive facility up-

grades to the Waste Isolation Pilot Plant since its initial construction. The WIPP facility disposes of defense-related transuranic waste in rooms mined out of an ancient salt formation. The upgrades, which began in late November and were expected to be completed in late January, included at least six major projects on the surface and in the underground repository:

- The ceiling in the area where waste arrives (2150 feet underground) was being raised approximately five feet to enhance the safety of workers and to provide added room for the operation of large equipment. The rock salt at WIPP moves in to fill opened areas at a rate of two to three inches per year (the process is called "salt creep"). After many years, when the openings have closed up too far, the walls, floor, and ceiling must be mined back.
- A project to direct airflow was scheduled. Airflow in the underground repository is separated into designated pathways that can be controlled to provide fresh air to all areas of the mine. Airflow is adjusted based on several factors, including the operation of diesel equipment and salt particles in the air while mining.
- Ground control work was conducted along the main waste transport route to address salt creep. Movement of rock salt in the underground is closely monitored, and preventative maintenance to stabilize walls and the ceiling is performed long before it becomes a safety issue.
- One of the five exhaust fans that are integral to WIPP's ventilation system was renovated. The air intake system is capable of pulling 425 000 cubic feet per minute of air through the mine.
- An electrical substation that provides power to approximately one quarter of the site was upgraded to enhance the electrical distribution system.
- A grapple hoist used in the remote-handled waste disposal process was replaced. The grapple hoist is used to load canisters of remote-handled waste into a facility cask, which shields the waste in transport to the underground disposal area.

Waste shipments to WIPP were temporarily halted during the upgrade process.

D&D Updates

- In early December, a new device, the Sand Mantis, began removing hardened residual waste from inside two liquid radioactive waste tanks at the U.S. Department of Energy's Savannah River Site. The Sand Mantis process removes the residual waste through a patented water-jet system that transfers the waste to a mill that grinds the waste to smaller particles that can easily be removed from the waste tank. The mantis sprays high-pressure water jets from a tiny opening made of gems, including sapphires—the only materials that can stand up to the water's pressure. The mantis is 8 feet long and weighs approximately 800 pounds. Its cross-shaped body can be collapsed into a straight line so it can be put into small openings at a tank top. Once inside, it unfolds and is guided by remote control.

The Sand Mantis

- Work to get weapons-grade plutonium off the Hanford site is running ahead of schedule, according to the U.S. Department of Energy, and all the weapons plutonium may be gone by early June. More than half has already been shipped to the Savannah River Site. The DOE had originally planned to have all the plutonium out of Hanford by the end of September 2009. The plutonium—consisting of 2300 canisters left at the end of the Cold War—has been stored in a vault at the Plutonium Finishing Plant under armed guard. Shipments began in fall 2007.
- In mid-December, the National Nuclear Security Ad-

ministration approved the start of construction of a Waste Solidification Building (WSB) at the Savannah River Site. The WSB is one of three critical facilities that will allow the United States to dispose of surplus weapons-usable plutonium. The WSB will process liquid waste from the Mixed Oxide Fuel Fabrication facility, currently under construction, and the planned Pit Disassembly and Conversion Facility. After material is processed at the Waste Solidification Building, transuranic waste will be packaged and sent to the Waste Isolation Pilot Plant in New Mexico, and low-level waste will be packaged and sent to an onsite facility or to an offsite commercial LLW disposal facility. The WSB will occupy about 9 acres adjacent to the MOX facility and the planned site of the disassembly and conversion facility. The total project cost to design, construct, and start up the WSB is $345 million, and the facility is expected to begin operations in 2012.

- The U.S. Department of Energy and its contractor Washington Closure Hanford have met a legal deadline to have most of the waste sites near Hanford's F Reactor cleaned up by the end of 2008. A Tri-Party Agreement covered the cleanup of 53 waste sites, including nine large burial grounds, at F Reactor by the end of the year. That included digging up contaminated soil and debris, filling holes with clean soil, and planting vegetation. The work involved digging up more than 400 000 tons of waste, including 40 000 tons of carcasses of animals used for radiation exposure research. F Reactor operated from 1945 to 1965 as one of nine Hanford reactors to produce plutonium for the national's nuclear weapons program. Also near F Reactor was a laboratory and an animal farm used through the early years of the Cold War for research on radiation exposure on plants and animals.

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- The United Kingdom's Nuclear Decommissioning Authority has announced the competition strategy for selecting who will manage the cleanup of the remainder of the country's civilian nuclear facilities under its ownership. The NDA said that following the successful conclusion of the competition to select and appoint new Parent Body Organizations (PBOs) for the Sellafield Site Licence

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Co. and the low-level waste repository near Drigg in Cumbria, it will launch two competitions for PBOs at its other sites. The competition to select a PBO for the Dounreay site is expected to be launched in the third quarter of 2009, with the contract to be awarded by the end of 2010. A competition to select a single PBO for three site licence companies (Magnox North Ltd., Magnox South Ltd., and Research Site Restoration Ltd.) is expected to begin in 2011 and to be completed by the end of 2012.

- The final decommissioning of Italy's Bosco Marengo uranium enrichment plant has been authorized. It will become the first nuclear facility in the country to begin decommissioning. The enrichment plant, located some 80 kilometers southeast of Turin in the northwest portion of the country, started operations in 1973, and produced more than 500 tonnes of fuel for domestic and overseas nuclear power plants.
- The cleanup of the first fuel pond at Dounreay, the United Kingdom's former fast reactor research and development center, has been completed. The project took 18 months, and was managed by Dounreay Site Restoration Ltd. The pond was used between 1964 and 2001 to store fuel elements from materials test reactors from around the world. Before cleanup work could begin, workers emptied the pond of the fuel storage racks and other equipment and filtered and drained the remaining water. Once empty, the stainless steel pond liner could be partially decontaminated, then cut out using hand-held equipment. Contamination had penetrated the concrete and steelwork surrounding the pond liner. These parts of the structure were removed using hand tools. Finally, the pond was subjected to 100 percent radiological surveys. The inner pond surface has now been painted with masonry paint to seal it, and an engineered steel cover over the opening will provide access for further decommissioning work in the facility.
- The Cumbia County Council has announced that it has agreed to make an "expression of interest" without commitment in the formal United Kingdom government process to select a deep repository for high-level radioactive waste. The Council said that 23 of 35 town and parish councils had supported a county council expression of interest. Cumbria is home to the Sellafield center and the low-level waste repository at Drigg. ■