Sproat "100 Percent Confident" about License Application Submittal Date; Other Yucca Mountain Updates

OCRWM Director Ward Sproat is "100 percent confident" that the U.S. Department of Energy will have the Yucca Mountain high-level waste repository license application submitted to the U.S. Nuclear Regulatory Commission by June 2008. Sproat, head of the DOE's Office of Civilian Radioactive Waste Management, which oversees the Yucca Mountain project, was quoted in a *Nuclear News* interview published in January 2007.

Sproat was less confident that the repository will open in 2017, saying that all along, the 2017 date was considered the "best achievable" date the facility could become operational. For instance, he said, the most uncertainty lies in the time between the submittal of the license application and the time the DOE can proceed with construction. The best-achievable scenario allocates three years, but it could be as much as seven years, Sproat conceded. This would bring the repository start of operations date to around 2021.

In November 2006, Sproat told a National Academy of Sciences panel that the most likely starting date for the repository would be in 2020. He attributed the delay to the likelihood of lawsuits and other challenges.

- The U.S. Environmental Protection Agency is expected to release its final Yucca Mountain radiation protection standard in 2007, agency officials announced at the end of 2006. The standard had been expected to be released by the end of the year, but was held up by a review by the White House Office of Management and Budget. A draft standard was issued in 2005. The EPA declined to comment on whether the final standard contains any changes from the draft, which proposed radiation release levels over a million-year period.
- At the end of 2006, the state of Nevada filed a petition with the U.S. Nuclear Regulatory Commission to prohibit the U.S. Department of Energy's proposal for in-

definite interim storage of spent fuel at the Yucca Mountain repository site. According to the petition, federal law prohibits a large interim storage site in Nevada as long as the state is the proposed location of a repository.

- In late November, the U.S. Department of Energy issued performance specifications for the Transportation/Aging/Disposal (TAD) canisters that it plans to use for transporting spent nuclear fuel from commercial reactor site to a high-level waste geologic repository. The agency will use the specifications to contract with industry vendors for developing conceptual container designs. The specifications include a description of the TAD system, which includes the TAD canister, the transportation overpack, the transportation skid, ancillary equipment, the shielded transfer cask, the aging overpack, the site transporter, the waste package overpack, and the storage ovepack. The specifications can be found on the Internet at http://www.ocrwm.energy.gov/.
- Decommissioned plants will not have to repackage spent fuel now being stored in dry storage canisters at Independent Spent Fuel Storage Installations at the closed plant sites, according to Ward Sproat, director of the U.S. Department of Energy's Office of Civilian Radioactive Waste Management. In a *Nuclear News* interview published in the January 2007 issue of the magazine, Sproat said: "We are not going to force people to open canisters they have sitting on a pad after their plant has been closed down. I believe we can come up with an equitable and mutually agreeable solution to this issue."

Waste Acceptance Contract for New Plants Due in Early 2007

The U.S. Department of Energy plans to develop a new standard waste acceptance contract for new power reactors, OCRWM Director Edward Sproat announced in late November. The DOE will be working with industry on developing a model contract, and an applicant seeking a combined construction/operating license from the U.S.

Nuclear Regulatory Commission for a new reactor will have to have a signed contract in hand before the NRC can issue the license. Sproat did not say how the DOE will handle the contract provision specifying the date by which the DOE must begin taking possession and disposing of commercial plants' spent fuel. That provision in existing contracts with the nation's nuclear utilities specified that the DOE would begin disposing of spent fuel by January 31, 1998, which in turn has led to a rash of lawsuits by utilities against the DOE for failure to meet that deadline (see next story).

Court Awards $39.7 Million in Rancho Seco Spent Fuel Lawsuit

Put the Sacramento Municipal Utility District on the list of nuclear utilities to receive court awards compensating them for the U.S. Department of Energy's failure to take possession of spent fuel by the January 31, 1998, contract date. In early December, the U.S. Court of Federal Claims awarded SMUD around $39.7 million in damages. The utility had initially sought to recoup $78.5 million in spent fuel costs incurred between 1992 and 2003. The court pared the amount to around half the original request.

Under contracts the DOE signed with nuclear utilities, the DOE was to take possession of a utility's spent nuclear fuel in 1998, the date by which a federal high-level waste/spent fuel repository was supposed to be operations. Delays in the repository program mean that the most optimistic start of operations date has been pushed back by more than 20 years. SMUD is one of more than 60 nuclear utilities that have sued the federal government after the DOE failed to meet its contractual obligations. The nuclear industry has estimated that total damages could reach $56 billion.

The Rancho Seco plant shut down in 1989 as a result of a citizen referendum. The spent fuel was removed from the reactor and placed in onsite dry storage in 2002.

DOE Releases GNEP Strategic Plan; Selects 11 Sites for Potential GNEP Facilities

In early January, the U.S. Department of Energy released its strategic plan for the Global Nuclear Energy Partnership (GNEP), outlining the program's purpose, principles, and implementation strategy. According to the DOE, the plan outlines a path forward to enable worldwide increase in the use of safe, emissions-free nuclear energy without contributing to the spread of nuclear weapons capabilities in a manner that responsibly addresses the waste produced. GNEP is a major element of President Bush's Advanced Energy Initiative.

The plan lays out how the DOE will prepare for construction and operation of a nuclear fuel recycling center and an advanced recycling reactor, and for continuing an aggressive research and development program focused on advanced fuel cycle technology. It also identifies the technology, economic, and environmental information necessary to present a convincing case to the Secretary of Energy by June 2008 for his decision on a path forward regarding the design and construction of recycling facilities in support of GNEP. The plan can be found on the Internet at http://www.gnep.energy.gov/.

Several weeks earlier, in late November 2006, the DOE selected 11 commercial and public consortia sponsoring 11 sites to receive up to $16 million in grants to conduct detailed siting studies for integrated spent fuel recycling facilities to support the GNEP initiative.The 11 proposed sites and sponsors are as follows:

- Atomic City, Idaho (EnergySolutions LLC).
- Barnwell, S.C. (EnergySolutions LLC).
- Hanford Site, Richland, Wash. (Tri-City Industrial Development Council and the Columbia Basin Consulting Group).
- Hobbs, N.M. (Eddy Lea Energy Alliance).
- Idaho National Laboratory, Idaho Fall, Ida. (Eddy Lea Energy Alliance).
- Morris, Ill. (General Electric Co.).

Industry news

- Oak Ridge National Laboratory, Oak Ridge, Tenn. (Community Reuse Organization of East Tennessee).
- Paducah Gaseous Diffusion Plant, Paducah, Ky. (Paducah Uranium Plant Asset Utilization Inc.).
- Portsmouth Gaseous Diffusion Plant, Portsmouth, Ohio (Piketon Initiative for Nuclear Independence LLC).
- Roswell, N.M. (EnergySolutions LLC).
- Savannah River National Laboratory, Aiken, S.C. (Economic Development Partnership of Aiken and Edgefield Counties).

Six of the proposed sites are DOE-owned.

The DOE will award the grants in 2007 for the groups to conduct site characterization studies for facilities that support GNEP. The facilities would include the Consolidated Fuel Treatment Center or the Advanced Burner Reactor, or both. The Consolidated Fuel Treatment Center would contain facilities where usable uranium and transuranics are separated from spent reactor fuel for use in producing new fuel that can be reused in a power reactor. The Advanced Burner Reactor would be a fast reactor that would demonstrate the ability to reuse and consume materials recovered from spent fuel, including long-lived elements that would otherwise have to be disposed up in a geologic repository.

The studies will examine site and nearby land uses, demographics, animal and plant habitats, geology and seismology, weather and climate, and regulatory and permitting requirements. The DOE may use this information in the environmental impact statements for each proposed GNEP facility. The department would then decide whether to move ahead with the facilities and choose a location for them.

Fourteen applications were originally submitted, and 12 were selected to receive a comprehensive merit review. Two of the 12 (the Tri-City Industrial Development Council and the Columbia Basin Consulting Group) decided to collaborate and team, because they both had nominated the Hanford site.

D&D Updates

● In early January, Consumers Energy's Big Rock Point Restoration Project received approval from the U.S. Nuclear Regulatory Commission to release the majority of the former nuclear plant property for unrestricted use. The NRC action confirms that the site meets all regulatory requirements and allows any type of use—from parks to playgrounds to housing—on the property. The release applies to approximately 435 acres and 1.5 miles of Lake Michigan shoreline. The property is a mixture of shoreline, mature hardwoods, and wetlands. Activities associated with the operation of the Big Rock Point nuclear plant actually encompassed less than 20 acres of the property. The plant's dry fuel storage facility remains under NRC jurisdiction and is located on a separate parcel from the 435 acres released for unrestricted use.

● In early November 2006, the U.S. Department of Energy has announced the completion of the decontamination and decommissioning operations at the Ashtabula, Ohio, site where uranium extrusion operations were carried out for 26 years in support of the government's nuclear weapons program.

The Ashtabula project, which focused mainly on uranium contamination, was completed by Lata-Sharp Remediation Services LLC, which was hired by the DOE in September 2005 to take over soil, groundwater, and facility remediation. Over 10 months of operations, Lata-Sharp excavated more than 1 million cubic feet of low-level radioactive and mixed waste from the site, and demolished more than a dozen structures. The DOE must still evaluate the site to ensure it meets final decontamination standards, which call for the site to be handed back to the site's owner, RMI Titanium Co., for unrestricted use.

This marked the third nuclear weapons site in a year where the DOE has finished cleanup operations. Major cleanups were recently declared completed at the DOE's Fernald site in Ohio and the Rocky Flats site in Colorado.

Industry news

A DOE celebration in mid-January in Ohio marked the successful conclusion of the Ashtabula, Columbus, and Fernald cleanup projects.

● Tired of what it termed "senseless delays," the state of New York filed suit in December to force the U.S. Department of Energy to spell out plans for decontamination and decommissioning of highly contaminated facilities and removal of residual high-level radioactive waste at the former commercial spent fuel reprocessing site in West Valley, N.Y. The suit was filed by the New York State Energy Research and Development Authority and the state's attorney general. It also seeks damages from the federal government for pollution that has leaked from West Valley and contaminated nearby land and groundwater.

The lawsuit follows extensive, though ultimately futile, negotiations between the state and the DOE on the division of cleanup responsibilities at the facility. The DOE is required by law to clean up the high-level radioactive contamination at the site, while the state is responsible for cleanup of low-level waste at West Valley landfills that have also leaked contamination into the soil and groundwater. The state is also concerned that the DOE, in at effort to cut costs, may decide to leave some residual contamination in place at the site, particularly the underground storage tanks that once contained high-level waste. The DOE is planning to bury (rather than remove) similar tanks at the Idaho National Laboratory and Savannah River Site.

● Waste retrieval began in late December on the ninth single-shell waste storage tank at the U.S. Department of Energy's Hanford Site. Tank C-108, built in 1946, is one of 16 single-shell tanks in Hanford's C tank Farm. The tank has a capacity of 530 000 gallons, and currently contains about 66 000 gallons of sludge waste that must be retrieved. Waste retrieval operations were recently completed on Hanford tank C-204, bringing to total number of single-shell tanks retrieved at Hanford to six. Waste retrieval operations remain under way on tanks S-112 and

S-102, and were to begin soon on Tanks C-104 and C-109. The work is being carried out by tank farm contractor CH2M Hill Hanford Group.

● The Savannah River Site has achieved its first area closure, transforming T-Area, a former industrial area, into a grassy hill. T Area was chosen as the first area to close largely because of its location at the periphery of the site and its position on the Savannah River. By closing areas at the periphery first, the SRS footprint will eventually shrink into an operational area at the center of the site.

During SRS's production years, T Area, also known as TNX, served as the gateway to the site. Equipment was brought via the river to the site and unloaded in T Area, where it was tested and evaluated before being used in the production facilities. More recently, T Area was used to model and evaluate the vitrification process now used in the Defense Waste Processing Facility, where waste is immobilized in glass for final disposition in a national waste repository. Demolition work in T Area was initiated in 2002. Final remediation work was completed in August 2006, 48 months earlier than the original schedule. Groundwater remediation in the area will continue for several years, however.

● The U.S. Department of Energy's vitrification plant at Hanford has a new official cost estimate: $12.26 billion, more than double the official estimate in 2003. The estimate depends on a congressional appropriation of $690 million per year until the plant is fully operational in November 2019. If the appropriation is cut, costs could rise further, the DOE and contractor Bechtel National have warned. Costs for the plant have risen since late 2004, in part because of technical problems, including the need for upgraded seismic design features.

● At the end of November, Energy Secretary Samuel Bodman signed a "waste determination" declaring that residual high-level radioactive waste in 15 underground storage tanks at the Idaho National Laboratory can be buried in place, as long as the contamination levels in any

possible future leakage will be so low as to present no significant long-term threat to public health or the environment. Lengthy reviews by the state of Idaho and the U.S. Nuclear Regulatory Commission determined that the U.S. Department of Energy had cleaned the tanks to the maximum extent practicable. The DOE is expected to close 11 of the tanks by October 2008 (three of the 30 000-gallon tanks were emptied in late November 2006 and filled with grout). The remaining four tanks are expected to be closed by December 2012. This represents the first time the DOE has completed a new regulatory review under a 2005 law that for the first times allows for disposal of high-level tank waste in shallow burial grounds at the Idaho laboratory and at South Carolina's Savannah River Site.

● The U.S. Department of Energy has emptied the first of several trenches filled with radioactive waste containers at the Hanford site, and completed the work a month ahead of an agreement deadline. Under an agreement with the DOE, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology, the DOE is removing transuranic waste containers from several trenches because of the heavily corroded condition of some of the buried drums. Once the drums are retrieved, workers will determine whether they contain TRU waste, which must be shipped to the Waste Isolation Pilot Plant in New Mexico, or low-level radioactive waste, which can be disposed of onsite at Hanford.

International Briefs

● The United Kingdom's four oldest reactors (Sizewell A 1 and 2 and Dungeness A 1 and 2) closed down at the end of 2006 after some 40 years of operation. These first-generation Magnox units were operated by British Nuclear Fuels plc's British Nuclear Group, under contract to the Nuclear Decommissioning Authority. The Oldbury 1 and

2 units are expected to be closed down at the end of 2008.

● In late November, Italy and France signed an agreement on the reprocessing of spent fuel now stored at Italy's decommissioned nuclear power plants. The fuel will be shipped to the La Hague reprocessing plant between 2007 and 2015, and the reprocessing waste will be returned to Italy between 2020 and 2025.

● Tests of robotic equipment that could be used to remove fire-damaged fuel and debris from the core of the Windscale Pile One reactor have been completed. The tests, at a facility in Colorado, involved a mockup of four full-size fuel channels from which simulated fuel and debris were removed remotely using grippers, scoops, and loosening tools. A 1957 fire at Windscale damaged some 20–25 percent of the core, and some 15 metric tons of fuel are thought to remain in the facility. The successful robotic tests will help the U.K. Atomic Energy Authority find the right technical solutions to clean up the reactor. The winner of the contract to manage the U.K.'s Sellafield complex will also direct the cleanup of the Windscale site and the Calder Hall Magnox station. That contract is expected to be awarded in mid-2008.

● Stabilization work on the Chernobyl-4 shelter (or "sarcophagus") was expected to be completed by the end of 2006. The work, which cost in the neighborhood of 45 million euros ($58 million), was performed by Atomstroyexpert. The stabilization work should extend the operational lifetime of the current shelter by some 10 or 15 years. During that time, a new shelter is to be constructed. The French-led Novarka consortium is considered to be the primary candidate for the new shelter contract.

● Russian expects to spend around $10 billion between 2008 and 2015 on decommissioning nuclear facilities built during the Soviet Union years. As elsewhere in the world, the cleanup work is being driven by the need to move forward with new nuclear facilities. Russia is planning to construct 40 new reactors by 2030.