Appeals Court Delays Yucca Mountain Decision

On August 3, the U.S. Court of Appeals for the District of Columbia Circuit, in a 2–1 decision, declined to force the U.S. Nuclear Regulatory Commission to continue its review of the U.S. Department of Energy's license application to construct a spent nuclear fuel and high-level radioactive waste repository at the Yucca Mountain site, instead delaying the case for up to four months—until after Congress finishes its 2013 budget appropriations. The NRC has claimed that it does not have the funding to complete the license review and issue a decision on the project. Judges Merrick Garland and Brett Kavanaugh supported the delay, while Judge A. Raymond Randolph dissented.

The lawsuit in question was filed by Aiken County, S.C., and others in response to the DOE's attempt to withdraw "with prejudice" the license application pending before the NRC. The "with prejudice" designation would mean that no future government administration could resubmit the application.

In a written statement, the Nuclear Energy Institute's general counsel, Ellen Ginsberg, noted: "The nuclear industry is disappointed that the Court of Appeals did not take the opportunity to directly address the unambiguous statutory obligation imposed on the Nuclear Regulatory Commission by the Nuclear Waste Policy Act. However, it is noteworthy that both the concurrence by Judge Kavanaugh and the dissent by Judge Randolph agree that the Nuclear Regulatory Commission has a clear statutory obligation under the Nuclear Waste Policy Act. Although he supported holding the case in abeyance, Judge Kavanaugh rejected the NRC's bases for its action and opined the NRC 'appears to have no legal authority to defy the law.'

"In his dissent, Judge Randolph describes the issue perfectly, consistent with the industry's view, in stating that the court's responsibility in deciding whether to order compliance with the law 'has never depended on the possibility that a later Congress might do something to excuse the violation.'

"Like Judge Randolph, we believe the court should have acted under the current circumstances. As the judge stated, 'There is no reason to delay issuing a writ of mandamus to correct this transparent violation of the law.'"

NRC Suspends Final Licensing Decisions in Wake of June 8 Court Ruling on Waste Confidence

On August 7, the U.S. Nuclear Regulatory Commission stated that it "will not issue licenses dependent upon the Waste Confidence Decision or the Temporary Storage Rule" until it can "appropriately address" the June 8 ruling by the U.S. Court of Appeals for the District of Columbia Circuit that the agency must conduct a true environmental analysis regarding the extension of temporary storage of spent nuclear fuel (see "Headlines" and "State of New York, et al., Petitioners, v. Nuclear Regulatory Commission and United States of America, Respondents," *Radwaste Solutions,* July-August 2012, pp. 6 and 54, respectively). This means that licenses for U.S. nuclear power plants, including those for both new construction and life extension, cannot be issued, although licensing reviews will continue on schedule. Only the final licensing decisions will be held up.

The NRC has yet to determine whether it will appeal the court decision or how it will respond. As stated in the agency's order: "Waste confidence undergirds certain agency licensing decisions, in particular new reactor licensing and reactor license renewal. Because of the recent court ruling striking down our current waste confidence provisions, we are now considering all available options for resolving the waste confidence issue, which could include generic or site-specific NRC actions, or some combination of both. We have not yet determined a course of action. But, in recognition of our duties under the law, we will not issue licenses dependent upon the Waste Confidence Decision or the Temporary Storage Rule until the court's remand is appropriately addressed. This determination extends just to final license issuance; all licensing reviews and proceedings should continue to move forward."

The agency's directive of timely renewal, however, means that any plants facing licensing deadlines as a result of the suspension will be allowed to continue operating as long as they submitted their application in time.

Entergy Corp.'s Indian Point nuclear power plant is reportedly next in line for license renewal, while Duke Energy Corp.'s proposed new plants in Levy County, Fla., are next in line for new construction and operating licenses. Altogether, according to several environmental or-

ganizations, the NRC action freezes nine construction and operating licenses, eight license renewals, one operating license, and one early site permit.

Bingaman Introduces Nuclear Waste Bill in Senate

In early August, Sen. Jeff Bingaman (D-N.M.) introduced S. 3469, the "Nuclear Waste Administration Act of 2012," a bill to implement the recommendations of the Blue Ribbon Commission on America's Nuclear Future. (For a list of those recommendations, see page 50, this issue.) Basically, the bill would "establish a new organization to manage nuclear waste, provide a consensual process for siting nuclear waste facilities, ensure adequate funding for managing nuclear waste," and serve other purposes.

In introducing the bill, Sen. Bingaman said, "The [BRC] has performed a very valuable service to the nation in showing us a way forward. Its recommendations merit our careful consideration and deserve our approval. I have attempted to put them into legislative form so that they can be enacted and implemented. I recognize that will not happen this year. It will take a great deal more work and time. But it must begin and I hope it will continue in the next Congress."

DOE Issues Supplemental EIS on Plutonium Disposition

At the end of July, the U.S. Department of Energy's National Nuclear Security Administration released *Draft Surplus Plutonium Disposition Supplemental Environmental Impact Statement (Draft SPD Supplemental EIS)* for public review and comment. The draft supplemental EIS analyzes the potential environmental impacts of alternatives for the disposition of 7.1 metric tons of additional weapons-usable plutonium from pits that were declared surplus to national defense needs in 2007 but were not included in the DOE's prior decisions, as well as 6 metric tons of surplus, weapons-usable non-pit plutonium.

The EIS analyzes four alternative disposition pathways: disposition of plutonium using the can-in-cansiter vitrification approach at the Defense Waste Processing Facility at the Savannah River Site; disposition of non-pit plutonium via H-Canyon at SRS; disposal of non-pit plutonium at the Waste Isolation Pilot Plant in New Mexico; and fabrication of pit and some non-pit plutonium into mixed-oxide fuel for use in domestic commercial nuclear power reactors. It also includes options for providing a pit disassembly and conversion capability including a stand-alone facility at SRS or installing capability in existing facilities at other locations either at SRS or Los Alamos National Laboratory. The MOX fuel alternative is the DOE's preferred alternative.

The 60-day comment period ended September 25.

NRC Moves Forward on Risk-Informed Regulatory Framework

Last year, U.S. Nuclear Regulatory Commission Commissioner George Apostolakis led a Risk Management Task Force (RMTF), at the request of then NRC Chairman Gregory B. Jaczko, to develop a strategic vision and options for adopting a more comprehensive, holistic, risk-informed, performance-based regulatory approach for nuclear reactors, materials, waste, fuel cycle, and transportation. In mid-June, a few weeks before he stepped down as chair, Jaczko directed the agency's staff to evaluate the RMTF's report and to provide recommendations to the commission next year on whether modifications to the regulatory framework should be made. Jaczko noted that the report could help improve regulatory consistency across the NRC's various programs.

"While the efforts of the Risk Management Task Force started before the accident at Fukushima, there is a clear nexus between the results of their report and the first finding of our Japan Near-Term Task Force, which noted that over the years NRC regulations have been developed in a patchwork manner. Looking down the road, it is important to address this issue," Jaczko said. "I want to thank Commissioner Apostolakis and his team of experts for producing an in-depth examination of our regulatory framework that helps point us towards a better approach."

"We set out to look at how the agency should be regulating 10 to 15 years from now," Apostolakis said. "We concluded that while today's 'defense-in-depth' concept has served us well and remains valuable, it's used unevenly and more guidance is needed on how much defense-in-depth is sufficient. The report's recommendations seek to change that."

The RMTF proposed that the agency incorporate risk-informed and performance-based approaches into its regulation and oversight and that a commission policy statement be developed on the issue, after obtaining stakeholder input. Jaczko's directions to the staff include reviewing the RMTF report and providing recommendations to the commission for consideration, including incorporation of the proposed concepts into important agency-wide policy documents, such as the Strategic Plan.

The RMTF report noted that using the term risk management "explicitly recognizes that adequate protection of public health and safety is not synonymous with absolute safety and that the NRC's role is to ensure that risks from the use of nuclear materials are well managed (and) establishing a common language of risk management across all NRC activities is consistent with the principles of good regulation."

One of the many RMTF findings was that while the concept of design-basis events and design-basis accidents continues to be a sound licensing approach, this set of events and accidents has not been updated to reflect insights from power reactor operating history and more modern methods, such as probabilistic risk assessment (PRA).

The RMTF report also suggested that the agency use rulemaking to create a "design-enhancement" category for regulatory treatment of beyond design-basis accidents. The report said the agency should reassess methods used to estimate the frequency and magnitude of external hazards and implement a consistent process that includes both deterministic and PRA methods.

- In a July staff paper evaluating recommendations based on lessons learned from the March 2011 accident at the Fukushima nuclear power plant in Japan, the U.S. Nuclear Regulatory Commission confirmed the agency's position that "both spent fuel pools and dry cask storage continue to provide adequate protection" for storage of spent nuclear fuel. However, the staff plans to evaluate whether there would be a substantial increase in the overall protection of public health and safety from expedited transfer of spent fuel into dry cask storage. The staff will also evaluate the issue within the context of the current regulatory framework. Once it has all of the information necessary to complete the evaluation, the staff said it will engage with stakeholders, including the public, industry, and the Advisory Committee on Reactor Safeguards, and will ultimately propose to the commission any recommendation for regulatory action.

Wolf Creek Awarded $12.6 Million in Spent Fuel Case

In mid-July, the U.S. Court of Appeals for the Federal Circuit, which hears appeals in contract cases against the federal government, awarded some $12.6 million in damages to the three owners of the Wolf Creek nuclear power plant in Kansas as compensation for spent fuel storage costs incurred after the failure of the U.S. Department of Energy to take ownership of spent fuel by a 1998 contract date. The award is around $2 million higher than the amount originally awarded by the U.S. Court of Federal Claims. The Wolf Creek judgment is just the latest in a long series of lawsuits against the DOE over breach of contract on spent fuel ownership. Some experts have estimated that the DOE's total liability over the spent fuel contracts could reach $20 billion by the year 2020 (see "Solving the Spent Fuel Dilemma," this issue, page 50).

D&D Updates

- In early August, Tennessee's historic preservation officer signed a final Memorandum of Agreement on plans for the Oak Ridge site's World War II-era K-25 gaseous diffusion plant building, concluding years of debate and negotiations on how to treat the facility and commemorate its place in history. The MOA, signed by the U.S. Department of Energy, the federal Advisory Council on Historic Preservation, and other parties, commits the DOE to spend more than $17 million on preservation activities in Oak Ridge or other projects to make amends for tearing down the historic K-25 building, which the DOE says has deteriorated too much to save. Instead, the DOE will pay for a new building nearby that will include some of the K-25 original equipment and replicate one of the plant's operating cells. The ongoing K-25 demolition is expected to be completed by mid-July 2014. As of mid-July 2012, UCOR, the demolition contractor, announced that it had sent off its 10 000th shipment of waste from the site since taking over the project in August 2011. The shipments comprise more than 78 000 cubic yards of wastes that include processed steel, asbestos, concrete rubble, compressors, and converters.
- Hanford's N Reactor has been cocooned, the U.S. De-

Power washers ensured the removal of any radioactive contamination clinging to heavy equipment used to remove soil near Lower Three Runs at SRS. The equipment was then radiologically surveyed to confirm acceptable release limits were met.

partment of Energy announced in June. Cocooning, a process being performed at most of the Hanford Site's production reactors, includes tearing down as much as possible of the reactor and its support structures and then sealing up what remains. The DOE has already cocooned six reactors at the site, and is starting work to cocoon the K East Reactor. That will leave only the K West Reactor, which will be cocooned after radioactive sludge is removed from water in its attached basin—work that started in mid-July. The ninth Hanford reactor, B Reactor, is being preserved as a museum. (For more on N Reactor, see "Cocooning Hanford's N Reactor—And Other River Corridor Closure Activities," this issue, p. 24.)

● The U.S. Department of Energy's Oak Ridge Office has received approval to more forward with a new plan to process stocks of fissile uranium-233 stored at Oak Ridge National Laboratory and complete a long-running project that's now expected to cost $511 million, down from a previous estimate of $1.1 billion. Under the new plan, the work will be completed in an existing building at ORNL, Building 2026, which has the necessary heavily shielded hot cells in which to perform the work. The uranium will be processed to eliminate its weapons potential and to prepare it for disposal at the Nevada National Security Site. Lab officials want to get rid of the U-233 stockpile because of its high hazard and expensive security. The work will be performed by Isotek, a partnership of EnergySolutions, Nuclear Fuel Services, and Burns and Roe.

● Decommissioning of the Brookhaven Graphite Research Reactor (BGRR), the first nuclear reactor built in the United States for peaceful atomic research, has been completed. The 13-year, $148-million project concluded in June with the final shipment of 23.9 million pounds of radioactive waste, containing more than 8000 curies of radiation, from the Brookhaven National Laboratory site. BGRR operated from August 1950 until June 1968, during which time it was the site of more than 25 000 scientific experiments. It was the first reactor of its size to undergo removal of its 700-ton graphite core, composed of 60 000 individually machined graphite blocks of different sizes piled into a cube 25 feet on each side, surrounded by a four-ft-thick concrete containment barrier and 6 inches of battleship armor plating.

● With the completion of the Savannah River Site's Lower Three Runs Project, Savannah River Nuclear Solutions LLC (SRNS) can now claim that 85 percent of the SRS has been cleaned up. Twenty miles long, Lower Three Runs leaves the main body of the 310-square-mile site and runs through parts of Barnwell and Allendale Counties until it flows into the Savannah River. Government property on both sides of the stream acts as a buffer as it runs through private property. SRNS excavated and disposed of more than five million pounds of contaminated soil from three specific sites along the stream, erected miles of fence, and placed more than 2000 signs to make Lower Three Runs safe and to reduce the site footprint. Funding from the American Recovery and Reinvestment Act helped accelerate the cleanup.

International Briefs

● In June, the Swiss federal government launched a three-month-long public consultation on the country's proposed plan for final nuclear waste disposition. Interested parties had until September 28 to provide opinions on the proposal and proposed procedures for deep geological disposal. Switzerland's nuclear waste disposal coopera-

tive, Nagra, is in the second stage of a three-stage site selection process. Nagra is investigating six siting regions in Südranden, Zürich Nordost, North of Lägern, Jura Ost, Jura-Südfuss, and Wellberg. That stage is expected to take four years to complete.

● A series of title swaps means that the U.K. Nuclear Decommissioning Authority will take ownership of 4 tonnes of German plutonium, currently in storage in the United Kingdom. The plutonium was from spent fuel from power reactors sent to the U.K. for reprocessing. An equivalent amount of plutonium will be made available in France for manufacture into mixed-oxide fuel for use in German nuclear power reactors. This deal eliminates the need for the United Kingdom to physically transport the plutonium to France.

● An international peer review group from the Organization for Economic Cooperation and Development's Nuclear Energy Agency has concluded that Sweden's planned spent fuel repository can meet long-term safety requirements. In March 2011, SKB, the Swedish nuclear waste management company, submitted a license application for constructing a repository and building a plant to manufacture the copper canisters that will be used in the spent fuel disposal system.

● The incineration furnace at France's Centraco waste treatment facility in Marcoule received authorization in early July to resume operations. An explosion in September 2011 at the furnace resulted in the death of one employee and injuries to four others. There were no radiological consequences as a result of the accident either to employees or the environment, according to French safety authorities.

● In August, German utility EnBW announced that it had applied for permission to decommission immediately the Neckarwestheim-1 and Philippsburg-1 nuclear power plants, shut down after the March 2011 Fukushima accident. The company said it has enough funds set aside for the decommissioning work. It will take up to two years for the requested permission to be granted.

● At the end of 2010, France's inventory of nuclear wastes totaled some 1.32 million cubic meters, the country announced in early August. This represents a 12.9 percent increase from the 1.15 million cubic meters held in 2007. Waste from the nuclear power industry accounted for 59 percent of the total, while the remainder came from research, defense, industrial nuclear applications, and medical applications. High-level waste accounted for just 0.2 percent of the total waste volume, but represents 96 percent of the radioactivity. The majority of the waste is short-lived low- and intermediate-level waste, associated with the operation and maintenance of nuclear facilities. This waste represents 60 percent of the waste by volume, but only 0.02 percent by radioactivity.

● Ukraine has announced that it is studying a plan to place a smelting plant in the exclusion zone around the Chernobyl nuclear power plant, with the metal produced being used for the production of containers for the storage of radioactive waste. The plan also includes development of facilities for equipment and material decontamination and the cultivation and burning of crops to fix some of the radionuclides in the soil. Wood cogeneration, wind, and solar plants may also be constructed in the exclusion zone, the country said.

● According to a parliamentary report issued in late July, Electricité de France, Areva, and other French operators may not be setting aside enough funds to cover future plant decommissioning and treatment and storage or disposal of radioactive waste. Cost estimates for decommissioning and waste treatment could total some €92 billion (around $113 billion), the report stated. Cost estimates for final disposal of high-level waste at an underground repository range between €14.4 billion and €35 billion ($17.6 billion and $43 billion).

● In June, a new steel cover was installed over the Fukushima Daiichi-4 spent fuel pool, to provide additional protection from the weather and prevent debris from the roof of the reactor building from falling into the pool. At the end of the month, a temporary loss of cooling at the Unit 4 spent fuel pool caused alarms to sound at the stricken unit. Investigations suggested that the problem lay in the system uninterruptible power supply (UPS). On July 1, cooling was restored to the pool once the problematic UPS was isolated. In total, pool cooling was out of action for some 33 hours, during which time the pool temperature rose from 31 °C to 42.9 °C, well within design parameters.

● According to officials of Andra, France's nuclear waste management organization, that country's very low-level waste disposal facility at Morvilliers is rapidly being filled and new waste disposal capacity may be needed, unless waste recycling policies change. The volumes of this type of waste have been rising faster than other waste categories because of France's restrictive goals for contaminated site cleanup and facility decommissioning. At the end of 2010, the inventory of this waste totaled 360 000 cubic meters. However, Andra projects that 1.3 million cubic meters of this waste will be generated by 2030, and once all nuclear power plants are decommissioned, the amount could total 2 million cubic meters. Morvilliers' capacity is currently 650 000 cubic meters, and Andra projects that it will be full by 2025. ■