

Will Court Ruling Put PFS Back on Track?

In late July, Judge David Ebel of the U. S. District Court for the District of Utah rejected two separate U.S. Department of Interior decisions that had placed the Private Fuel Storage (PFS) away-from-reactor spent fuel storage project on hold. In the ruling, Judge Ebel said that the Bush Administration's Interior Department's 2006 decisions were "arbitrary, capricious, an abuse of discretion, not in accordance with law, without observance of procedures required by law, and otherwise fatally flawed" in rejecting a lease for the project and blocking access to a right-of-way on federal lands needed to ship waste to the proposed facility. Interior's decisions have been remanded to the agency for further consideration.

PFS, a consortium of eight nuclear utilities, was developed when it became obvious that the U.S. Department of Energy would not be able to take title to commercial spent fuel in January 1998 as outlined in the Nuclear Waste Policy Act of 1982. (Members include Xcel Energy, Genoa Fuel Tech, American Electric Power, Southern California Edison, Southern Nuclear Co., First Energy, Entergy, and Florida Power and Light.) The consortium contracted with the Skull Valley Band of Goshute Indians to lease reservation land southwest of Salt Lake City, Utah, to construct a facility that could store up to 40 000 tons of spent fuel in above-ground storage casks. The project was bitterly opposed by Utah public officials and environmental groups, on the grounds that delays in the Yucca Mountain project would make the PFS facility a de facto disposal site for spent fuel rather than a storage facility.

After a nine-year licensing process, PFS received a U.S. Nuclear Regulatory Commission license to operate the storage facility in February 2006. But shortly thereafter, the Interior Department rulings appeared to shutter the project completely. PFS and the Goshutes sued, alleging that Interior's decisions were politically based. This allegation was based on the widely held belief that Utah's two senators, Orrin Hatch and Robert Bennett, both Republicans, agreed to support the Yucca Mountain project in a 2002 vote in exchange for Bush Administration assurance that federal officials would kill the PFS project.

Ebel's ruling stated that according to law, the Interior Department's Bureau of Indian Affairs (BIA) must defer to Indian landowners "to the maximum extent possible"

in determining to approve leases such as the one PFS requested. The Skull Valley Band had already urged Interior to approve the lease and had offered to provide additional information—an offer that BIA did not respond to. This was evidence that the agency did not give proper weight to the tribe's views, Ebel said.

Ebel was especially critical of the decision to reject the right-of-way on the grounds that there were too many unanswered land management questions about the project. Interior's Bureau of Land Management (BLM) was responsible for preparing a final environmental impact statement (FEIS) on the project, Ebel stated, and the unanswered land management questions were BLM's responsibility to resolve. To deny an application because of Interior's own failure to prepare a FEIS was "arbitrary and capricious," Ebel stated.

Utah's congressional delegation issued a joint statement condemning the decision. "The plain simple fact is that we will never allow this facility to be built," stated Sen. Hatch.

Yucca Mountain Updates

The U.S. Court of Appeals for the District of Columbia Circuit has said it will let the U.S. Nuclear Regulatory Commission commissioners rule first on the Yucca Mountain appeal before it takes up a lawsuit that involves many of the same arguments. A court order issued in late July directed parties in the court case to file status reports with the court every 30 days and to file any motions within 10 days after the commission rules. Thus, the court's previously scheduled date of September 23 for oral arguments is on hold. The commissioners are considering whether to hear an appeal of a licensing board decision that said the U.S. Department of Energy does not have the authority to unilaterally withdraw the license application for a high-level waste repository at Yucca Mountain, Nev. (See "Headlines," *Radwaste Solutions*, July/August 2010, page 6.)

● The U.S. Department of Energy has not developed a master plan to coordinate its shutdown of the Yucca Mountain repository project, according to a July 21 report by the DOE Office of Inspector General (OIG). The OIG report said it was not able to complete an audit of the shut-

down plan because officials with the DOE's Office of Civilian Radioactive Waste Management (OCRWM), which administers the Yucca Mountain project, told OIG that the plan was not complete and that events were moving so quickly that no further action on the master plan was contemplated. OCRWM told OIG that instead, it was establishing focus groups to help manage shutdown activities. OIG's report said it did not think these efforts could substitute for a master plan. OCRWM's response, included in the report, asserted that the DOE is committed to closing down the program in a responsible and orderly manner and that it believes it is maintaining a strong focus during the shutdown process, ensuring that records, property, and contracts are appropriately addressed, and that personnel are provided the resources they need. The full report can be found on the Internet at www.ig.energy.gov/documents/OAS-SR-10-01.pdf.

- Some 91 members of Congress signed a July 6 letter to Energy Secretary Steven Chu, asking him to halt the termination of the high-level waste repository project at Yucca Mountain, Nev. The House and Senate lawmakers, both Republicans and Democrats, represent states that have nuclear power plants or U.S. Department of Energy facilities with high-level defense waste onsite. In the letter, the lawmakers stated that they are deeply troubled that the DOE continues to move forward with its plan to shut down the Yucca Mountain project despite recent action by the U.S. Court of Appeals for the District of Columbia Circuit and by a U.S. Nuclear Regulatory Commission Atomic Safety and Licensing Board. The letter reminds Secretary Chu that the Nuclear Waste Policy Act designated Yucca Mountain as the only candidate site for the national repository and that Congress has voted several times to retain Yucca Mountain as the national repository. They asked that the DOE recognize the spirit of the law and halt all efforts to reprogram funds or terminate contracts related to the project.

Low-Level Waste in the News

- In late July, the Southeast Compact Commission unanimously voted to "proceed with legal action" over unresolved issues in the lawsuit, *Alabama et al v. North Carolina*. On June 1, the U.S. Supreme Court ruled that North Carolina did not breach its duties under the Southeast Interstate Low-Level Radioactive Waste Management

Compact when it failed to take the appropriate steps required under the Compact to license a waste disposal facility in that state. However, the Court denied North Carolina's motion to dismiss the Commission's claims on the ground of sovereign immunity and its motion for summary judgment on Counts III-V of the suit. "The Commission lost on the counts related to breach of contract and the Commission's power to sanction a state. But there are still equitable claims that are unresolved and the Commission wants to pursue those," according to Henry Jones, attorney for the Commission. Added Commission Chairman Mike Mobley: "The other states in the Southeast Compact were wronged when North Carolina walked out on its promise to them. We can't let them get away with that. We're determined to pursue all of our options to bring this suit to a successful end. It's the right thing to do."

- EnergySolutions is revising its international business strategy to focus more on helping overseas customers dispose of radioactive waste in their own countries. The company has been attempting for years to import some 20 000 tons of low-level waste from decommissioned nuclear facilities in Italy for processing and disposal in the United States, but has faced strong opposition from state and regional entities. According to company president Val Christensen, "We have determined that we can best serve our international customers by exporting out skills and technologies and building longer term relationships to assist them in developing their own local facilities and capabilities, rather than pursuing a short-term disposal solution at the company's Clive, Utah, facility."

- Washington state's plans to construct a cap over the US Ecology low-level waste disposal facility on the Hanford reservation have been delayed. The state has a lease from the federal government for 100 acres on the Hanford Site for the facility, which disposes of LLW from states in the Northwest and Rocky Mountain Low-Level Waste Compacts. The proposed cap would, however, extend off the 100 leased acres, and so the lease will need to be changed to allow the cap. Because of a tight schedule to do construction before the onset of cold weather, the state will delay construction until a final decision on cleanup needed at the site and future closure of the facility is made. The state hopes to have a decision in time for construction to begin next summer.

- The United Kingdom's Nuclear Decommissioning Authority has opened a new state-of-the-art low-level waste

storage vault at the LLW disposal facility at Drigg. The 100 000-cubic meter Vault 9 has been designed to meet stringent nuclear and environmental regulations, with the emphasis on the use of such strategies as waste minimization and metal recycling to make the best use of the site.

NRC: Source Protection Draft Policy Statement

The U.S. Nuclear Regulatory Commission is seeking public comment on a draft policy statement on the protection of cesium-137 chloride radiation sources that are widely used in medicine and industry, and will hold a public meeting to solicit stakeholders' input. The draft policy statement, published in the *Federal Register* in late June, describes the NRC's proposed policy and expectations on the secure uses of cesium chloride sources and the agency's potential actions should the threat environment change. The draft statement emphasizes that the security of radiation sources is an essential part of the NRC's mission, cesium chloride sources are adequately protected under current NRC requirements, and the NRC encourages voluntary design improvements that could further enhance their security.

Cesium chloride sources are used in blood irradiation, bio-medical and industrial research, and calibration of instrumentation and dosimetry. They have received special attention because the cesium chloride powder is highly soluble and dispersible, presenting security concerns that the sources could be used by terrorists in a radiological dispersal device, or "dirty bomb."

While noting the beneficial uses of cesium chloride radiation sources, the draft policy statement says developing alternative technologies would be "prudent," and states the agency's view that it is "imperative to develop a pathway for the long-term storage and disposal of these sources."

The draft policy statement reflects security improvements imposed by the NRC and state agencies since 2001, as well as a voluntary program initiated by the National Nuclear Security Administration to enhance security beyond NRC requirements. The subject of cesium chloride radiation sources was also addressed by the Interagency Radiation Source Protection and Security Task Force, created by the Energy Policy Act of 2005 and chaired by

NRC Chairman Gregory B. Jaczko. The task force was scheduled to issue its second report to the President and Congress in August.

Comments on the draft policy statement will be accepted through Dec. 17. They may be submitted through the federal government's rulemaking Web site, <http://www.regulations.gov>, using Docket ID NRC-2010-0209, or by mail to Cindy Bladey, Chief, Rules, Announcements and Directives Branch, Office of Administration, MS: TWB-5 B1M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

● In a related story, in late June the NRC requested public comment on a proposed rule to make several changes to its regulations for distributors of radioactive material, aimed at making requirements clearer, less prescriptive, more risk-informed and up-to-date. The proposed rule, published June 24 in the *Federal Register*, would also redefine categories of devices to be used under exemptions from regulation, add explicit provisions regarding the sealed radioactive source and device registration process, and add flexibility to the licensing of users of sealed sources and devices.

The proposed rule is primarily intended to make licensing processes more efficient and effective, while ensuring continued safe use of radioactive material. The changes would affect manufacturers and distributors of radiation sources and devices containing radioactive material, as well as future users of some products, such as static eliminators, currently used under a general or specific license.

Public comments were accepted through Sept. 7.

Pilgrim Installing Additional Groundwater Monitoring Wells

Entergy, owner of the Pilgrim nuclear power plant in Massachusetts, will be installing more groundwater monitoring wells at the site after one of the 12 existing wells showed increased levels of tritium. That well, identified as MW-205, first tested positive for detectable levels of tritium—at levels of 8600 picocuries per liter, well below the Environmental Protection Agency's 20 000 picocuries/liter drinking water limit—from samples taken in June. By July, however, tritium levels had reached 25 552 picocuries/liter. The contaminated well is located about 100

feet from the ocean and near the plant's condensate storage tanks. The U.S. Nuclear Regulatory Commission has concluded that, so far, there is no risk to public health or safety.

D&D Updates

- Removal of radioactive thorium along the DuPage River in northern Illinois has resumed after a year's hiatus. Tronox Inc., the chemical manufacturing company responsible for the cleanup, filed for bankruptcy protection in January 2009. But now a bankruptcy judge has approved a plan to create a \$25 million trust fund to pay for the cleanup efforts in the town of Warrenville. This phase of the river cleanup should be completed by the end of this year. Another \$30 million will be needed to complete the last phase of cleanup. The radioactive material came from an old gas light manufacturing plant in West Chicago, Ill. Thorium wastes, a by-product of the manufacturing process, were used as soil filler throughout the area between the 1930s and the 1970s, when the plant was shut down.

- Uranium Dispositions Services LLC, a joint venture of Areva, EnergySolutions, and Burns and Roe, has received permission to begin Hot Functional Testing of the DUF₆ facility located at the U.S. Department of Energy's Portsmouth site in Ohio. The facility will convert 700 000 metric tons of depleted uranium hexafluoride into uranium oxide and aqueous hydrogen fluoride. The facility will convert 13 500 tons of the depleted uranium per year and is expected to operate until 2037.

- An infusion of federal stimulus money is resulting in accelerated cleanup work at the U.S. Department of Energy's Piketon, Ohio, site. In addition to increased contaminated groundwater removal, demolition of two structures, the X-760 facility and the cooling tower complex, is under way. Demolition work has also started on the switchyard facility. Finally, repackaging and disposition of some 1260 metric tons of excess uranium at the site is in progress.

- In July, crews at the Hanford Vitrification Plant on the U.S. Department of Energy's Hanford Site began a series of complicated cooling panel installations in the Low-Activity Waste Vitrification Facility. The panels are being installed in the area of the facility where the 2100 °F waste glass mixture, the final product of the vitrification process,

will be poured into stainless steel containers for permanent storage. The panels will absorb the extreme heat emitted from the mixture, helping to keep the pour area of the facility at approximately 150 °F. This temperature allows the containers to be cool enough to be transported out of the facility and maintains the integrity of both the equipment and the surrounding concrete.

- In late June, Russian nuclear fuel producer TVEL and state nuclear company Rosatom marked the completed of decommissioning of a plant for the production of ceramic powders with a low concentration of uranium dioxide. The facility at the JSC Chemical and Metallurgical Plant, in Krasnoyarsk, in far eastern Russia, has been returned to a greenfield site. The total cost to decommission the plant was put at some 656 million rubles (\$21 million).

- With the successful completion of a pilot project, the U.S. Department of Energy's Savannah River Site is ready to use thermal detritiation to remove tritium from soil and concrete debris. The new technology will be utilized in D Area at SRS and possibly at other DOE sites with similar cleanup challenges. The contaminated soil and concrete resulted from heavy water production in D Area from the 1950s to the 1990s. Each thermal detritiation unit is a concrete block structure with a tin roof, housing an array of commercial heating elements at its base. The detritiation process begins when contaminated concrete and soil excavated from D-Area locations are loaded into the unit. The soil and concrete are heated to evaporate the water. Once the target temperatures are reached, they are maintained for about a week. During the heating process, the tritium is released into the atmosphere at negligible levels. Completion of the project, funded by the American Recovery and Reinvestment Act, is scheduled for September 2011.

- The successful transfer this August of nearly 15 000 liters of radioactive liquid waste from the Magnox Swarf Storage Silo to the Site Ion Exchange Effluent Plant (SIX-EP) at the Sellafield sites marks the start of a so-called Liquor Activity Reduction (LAR) process. In the LAR process, silo liquor will be transferred to SIXEP for treatment. After each transfer, the silos are topped with clean water. The process will be repeated on a weekly basis, gradually reducing the activity of the silo liquor through dilution. After about three or four years, the activity of the liquor wastes will have been reduced by about 90 percent, and the solid waste inventory will then be removed.

SCE Gets \$142.4 Million for Spent Fuel Storage Expenses

In early June, a federal court ordered the federal government to pay \$142.4 million to Southern California Edison (SCE) to compensate the utility for costs incurred in storing its spent nuclear fuel for more than a decade beyond the date the U.S. Department of Energy contractually was obligated to take the fuel for disposal in a federal repository. SCE was awarded \$92 million to cover costs of building dry storage facilities at the San Onofre nuclear power plant, \$23.6 million for overhead costs associated with dry storage facilities, and \$26.8 million for costs associated with storing some of the spent fuel offsite at the General Electric away-from-reactor storage facility in Morris, Ill. The court denied, however, SCE's request to recover its costs as a partner and investor in Private Fuel Storage, a venture attempting to establish a fuel storage facility on Tribal lands in the Utah desert, citing the "speculative nature" of that project.

This is the second-largest award to date for breach of the spent fuel disposal contract. Altogether, the federal government has paid nuclear utilities more than \$550 million for breaching the spent fuel contracts. In addition, the Justice Department estimates that the government will owe utilities \$12.3 billion in total even if a repository were to open by 2020. With the Yucca Mountain project all but lifeless and a Blue Ribbon Commission empanelled to basically begin the waste repository process from scratch, it appears impossible that a repository could be opened by that time, making the potential government liability even greater.

International Briefs

- The French waste management company Andra has been given more time to establish a repository for low-level long-lived radioactive wastes (a category that includes graphite and radium-bearing waste). The original deadline under a 2006 law was 2013 to have the facility in operation, and two communities in eastern France had been chosen from a list of volunteer communities, although both later withdrew because of public pressure. There are still around 30 communities on the candidate list, Andra Director General Marie-Claude Dupuis said. The current plan is for Andra to review the situation and

tell the government by 2012 whether a satisfactory disposal solution is at hand. If it is not, the government will ask Andra to build an interim storage facility for the graphite waste so that this waste can be removed from the country's shutdown first-generation gas-cooled reactors starting in 2014.

- In mid-June, Areva inaugurated the cold crucible at the La Hague recycling facility, a first for vitrification of high-level nuclear waste. According to Areva, cold crucible technology makes it possible to reach temperatures above 1200 °C, thereby enabling vitrification of a wider variety of radioactive waste and a higher production waste. In cold crucible technology, electric currents are induced directly in the glass to raise its temperature without heating the crucible.

- The United Kingdom could select a site for a nuclear waste repository as early as 2025, according to a timeline released by the U.K. Nuclear Decommissioning Authority in early July. A stepwise program is envisioned, and requires voluntary participation of candidate host communities. After site selection, a 15-year construction period would be followed by some 90 years of operation, concluding with a 10-year process to close and seal the site. The wastes needing disposal include 11 200 cubic meters of spent nuclear fuel, 1400 m³ of high-level waste, 3300 m³ of plutonium, 364 000 m³ of intermediate-level waste, 17 000 m³ of low-level waste, and 80 000 m³ of uranium.

- Wildfires in Russia forced authorities to remove radioactive material from a top secret nuclear research facility in early August. The nuclear facility in Sarov, a city still closed to non-Russians, lies in the central Nizhny Novgorod region, east of Moscow, which is one of the areas worst hit by the wildfires.

- A third Finnish utility, Fennovoima, has received government permission to construct a nuclear power plant in the country, and so now must negotiate its entrance into Posiva, the Finnish waste management and spent fuel disposal organization owned by current nuclear operators Teollisuuden Voima Oyj and Fortum. Fennovoima expects to pick a site for the new nuclear plant in 2011 and hopes to begin generating nuclear electricity by 2020. Posiva is already developing the Onkalo rock laboratory, which will be expanded into a final spent fuel repository if the geologic formations meet expectations. Fennovoima must resolve the spent fuel disposition issue before it can receive a construction license. ■