

## Government/Exelon Deal on Spent Fuel Storage

The U.S. Department of Justice and Exelon Corp., the largest operator of nuclear power plants in the United States, have reached a settlement under which the government will reimburse Exelon for costs associated with the storage of spent nuclear fuel at the company's nuclear stations because of the U.S. Department of Energy's failure to take possession of the spent fuel in 1998 as prescribed by the Nuclear Waste Policy Act. Under terms of the agreement, Exelon will receive \$80 million immediately to reimburse the company for costs already incurred, with additional amounts to be reimbursed annually for future costs.

If the Yucca Mountain repository opens in 2010 as the DOE currently plans and the DOE begins to accept spent fuel at that time, total reimbursements to Exelon would eventually reach some \$300 million. In all cases, reimbursements will be made only after costs are incurred and only for costs resulting from DOE delays in accepting spent fuel.

Exelon is only one of many nuclear utilities seeking reimbursement from the government for costs of spent fuel storage resulting from the DOE's failure to begin accepting spent fuel in 1998, so other settlements between utilities and the government may occur in the future.

## Yucca Mountain Updates

### Court Ruling

In a ruling that should have come as no surprise to anyone who was paying attention during oral arguments in January, the U.S. Court of Appeals in Washington, D.C., handed down a decision on July 9 stating that the U.S. Department of Energy's planned underground high-level waste/spent fuel repository in Yucca Mountain, Nev., had been selected in a constitutional manner. However, the court continued, the U.S. Environmental Protection Agency's 10 000-year compliance period for limiting the presence of radionuclides in groundwater deviated from a National Academy of Sciences (NAS) recommendation of a longer compliance period. Therefore, the ruling said, either the EPA and the U.S. Nuclear Regulatory Commission must revise the regulations to extend the compliance period beyond 10 000 years (the NAS had suggested a period possibly as long as 1 million years), or Congress must enact legislation empowering the EPA to deviate from the NAS recommendation.

The ruling came in response to several legal challenges to the repository plan, including a constitutional challenge.

The DOE quickly stated its satisfaction with the court decision. Said Energy Secretary Spencer Abraham: "I am pleased with today's decisions handed down by the court. DOE will be working with the EPA and Congress to determine appropriate steps" to address the 10 000-year compliance standard. The state of Nevada, long opposed to the project, was equally pleased by the ruling. As noted by Democratic Sen. Harry Reid, "The court ruling is a significant blow to the Department of Energy and the Yucca Mountain project and I believe enough to effectively kill the project."

In the meantime, the DOE's work on the upcoming license application was expected to remain on schedule. Industry proponents noted that the NRC is not scheduled to issue a construction license until 2007 or 2008, plenty of time either to work with the EPA to develop a new standard or to convince Congress that the law must be revised.

### Canister Integrity

The Nuclear Waste Technical Review Board has stepped back from its position that a so-called "hot" repository (i.e., one that operates above the boiling temperature of water) could cause canister corrosion within 1000 years. The Board said that new science presented by the U.S. Department of Energy had caused it to rethink the problem.

The Board outlined its position in a July 28 letter to Margaret Chu, director of the DOE's Office of Civilian Radioactive Waste Management. According to the letter, "Geochemical considerations preclude high-temperature, high-chloride brine conditions at Yucca Mountain," leading the board to agree that the corrosion mechanism was unlikely.

### Budget

House and Senate supporters of the Yucca Mountain project are scrambling to come up with enough money to continue the project for fiscal year 2005.

The Bush administration requested \$880 million for the program for fiscal 2005, but a proposal to gain access to the industry-funded Nuclear Waste Fund under a new congressional budgeting rule has complicated this year's appropriations process. The House passed a \$131-million Yucca Mountain allocation, the Defense Department's share of the repository project. The other \$749 million is supposed to come from the Nuclear Waste Fund, but legislation is needed to allow the project to tap into those

funds, and that legislation is lagging the appropriations process.

The House Energy & Commerce Committee approved Waste Fee Reclassification legislation (H.R. 3981), but the bill has not passed the full House. Offsets of \$576 million were attached to the bill, enough to keep the program alive in 2005, although the amount is less than the budget request.

In the meantime, the Senate was looking at a nuclear waste fee surcharge for 2005 to keep the program alive. The fee proposal, crafted by Sen. Pete Domenici (R-N.M.), would tack a 60 percent surcharge onto the current 1 mill-per-kilowatt-hour fee nuclear utility ratepayers currently pay. That would generate some \$446 million—again, less than the budget request, but enough to keep the program going through 2005.

Another option being considered is to fund the program with a continuing budget resolution for 2005, which would keep the project funding at the current level of \$570, enough to allow the DOE to finish its license application work. Or, House-Senate budget negotiators can tackle the problem later this session.

The 2005 fiscal year begins October 1, 2004.

### *License Application*

The U.S. Department of Energy has certified that roughly 1.2 million documents on the Yucca Mountain repository have been posted on a U.S. Nuclear Regulatory Commission electronic database. The June 30 certification means that the DOE will be able to submit a license application to the NRC at the end of December this year. (The documents must be posted on the database at least 6 months prior to submittal of a license application.)

The state of Nevada has already stated that it might challenge the adequacy of the DOE certification.

The posting has started many clocks. The NRC had 15 days to appoint a prelicense application presiding officer, who will address challenges and issues surrounding the declaration. The agency had 30 days to certify the documents as publicly available. In the meantime, Nevada has 90 days to post and certify documents on the NRC's licensing support network.

### *Politics*

While Democratic presidential candidate John Kerry says that nuclear power will play an "essential" role in reducing U.S. reliance on foreign oil, he continues to oppose the proposed Yucca Mountain spent fuel repository, challenging the scientific justification for the plan. His

running mate, Sen. John Edwards (D-N.C.), despite a vote in favor of the project in 2002, now says that he supports John Kerry on all issues important to the people of Nevada, including Kerry's pledge to stop nuclear waste coming to the state.

A plank in the official Democratic Party platform, under the category "Cleaner Water and Healthier Communities," states: "We will protect Nevada and its communities from the high-level waste dump at Yucca mountain which has not been proven to be safe by sound science." Democrats hope that the plank will help the Kerry-Edwards ticket to win the state in the fall election.

Interestingly, state of Nevada Republicans, recognizing that 88 percent of Nevadans believe the repository project will inevitably succeed, adopted a state party platform that calls for "sound science" and financial benefits for all federally managed lands in the state. Specifically, while not mentioning the Yucca Mountain project by name, the platform encourages the state to "negotiate with federal, state and county governments and other entities to minimize negative impacts from federal control and exploitation of federally managed lands."

- Political uncertainty about the future repository has led the House Appropriations Committee to cut in half the allocation for the U.S. Department of Energy's Nuclear Power 2010 program for fiscal 2005. The committee voted \$5 million for the program, basing their vote on the presumption that the U.S. Nuclear Regulatory Commission should not license new reactors until a high-level waste repository is operating. On the other hand, Sen. Pete Domenici (R-N.M.) has said he wants to fund the program above the \$10.2 million request level. This, as with many other budget issues, will most likely be resolved during House-Senate budget negotiations later in this session.

### *Transportation Schedule*

The U.S. Department of Energy's Office of National Transportation should be able to support spent fuel shipments beginning in 2010, subject to budget appropriations.

In a July 27 letter to contract holders of the standard disposal contract, the DOE announced that it was resuming the delivery commitment schedule (DCS) process. This process allows the contract holders, commercial nuclear power plant owners, and others to provide information on the type, location, and transportation mode for the planned shipment of their annual waste acceptance allocations of spent fuel from sites. The DOE's disposal contract requires the submittal of DCS documents on or before September 30, 2004.

The DOE is trying to amass as much information about future transportation needs as possible. Stated the DOE in the letter: "Although you are only required to submit a DCS for your 2010 waste acceptance allocations, to assist us in our planning efforts, the department encourages the submittal of DCSs for all the years in which you have allocations." The DOE also asked contract holders to provide their expectations regarding the characteristics (age, burnup, enrichment) of the spent fuel to be shipped between 2010 and 2015.

### D&D Briefs

- The U.S. Department of Energy scheduled the draining of sodium from the primary cooling loops of the Fast Flux Test Facility (FFTF) for early-to-mid-August, thereby ending the long dream of FFTF supporters to restart the reactor and use it for the production of medical isotopes. The 400-megawatt FFTF was completed in 1978 to serve as a test reactor for the government's breeder reactor program. When that program was canceled, the reactor no longer had a mission. Still, it operated from 1982 to 1992, testing advanced nuclear fuels and designs and producing medical and industrial isotopes. Concerns about nuclear proliferation, however, forced the end of the reactor's operations. In 2001, the DOE ordered the decommissioning of the plant. Sodium was drained from the secondary cooling loops in spring 2003.

- Demolition of what was once called "the most dangerous building in America" began in late July at the U.S. Department of Energy's Rocky Flats site. Building 771, a plutonium process building, had a 50-year history of plutonium leaks and spills, the DOE said. Demolition was expected to take six to eight weeks to complete. The building had already been cleaned and stabilized, a process that involved removing 15 000 liters of plutonium solutions, 240 contaminated glove boxes, 251 tanks, more than 11 miles of piping, and 40 000 liters of contaminated sludges. Cleanup at the Rocky Flats site is scheduled to be completed by the end of 2006.

- About 100 tons of spent fuel still remained in the K-West Basin at the U.S. Department of Energy's Hanford site when the July 31 deadline passed for all the fuel to be removed. Fluor Hanford, the project contractor, expects to have the last of the fuel removed by mid-September. The primary cause of the delay was the unanticipated level of degradation of some of the fuel, which slowed packaging operations and caused water system filter plugging. The less complicated K-East Basin has been emptied and

work has started on sludge removal.

The sludge removal program, however, has run into some problems, and in mid-July the DOE proposed a \$935 000 fine against Fluor Hanford because the contractor allegedly broke several nuclear safety rules while designing and building the sludge and water system for the K-Basins. Fluor Hanford had 30 days to respond to the penalty notice and could make a case for a lower fine. A company spokesman noted that the company reported some of the problems itself and has taken steps to fix them. Federal inspectors are carefully monitoring the ongoing sludge work.

- The U.S. Department of Energy has reopened the bidding process for a contract to clean up the Hanford reservations's 210-square-mile Columbia River corridor. The work covers removing radiologically and chemically contaminated soil from the shoreline, demolishing and sealing Hanford's nine shutdown production reactors, and cleaning up an area at the south end of the Hanford site. The new request for proposals follows complaints about the bidding process and the overturning of a contract award last year. Bechtel Hanford had been managing the work since 1994. The contract was expanded and rebid in 2002, and the DOE ultimately awarded the new contract to Washington Closure Co. Losing bidder Bechtel Hanford, however, successfully challenged that award, while continuing the work in the two years since.

### What's Up with WIPP

The U.S. Department of Energy's Waste Isolation Pilot Plant will be preparing space underground for more science research, thanks to a \$1 million appropriation from Congress for fiscal 2004. The money is going toward refurbishing underground rooms and alcoves once used by Sandia National Laboratories for experiments, and upgrading an area now used by Los Alamos National Laboratory (LANL) to support particle physics research. The depth of the WIPP repository and its location in thick salt deposits make it ideal for experiments that require extremely low background radiation measurements. Shielded from surface cosmic rays and naturally occurring radioactive by-products such as radon, the nearly one-half-mile-deep repository offers researchers a unique environment for conducting experiments in particle physics, cosmology, and other frontier sciences.

In the past, funds have been used for neutrino detection research conducted at WIPP by a group led by LANL scientists. This year's funding will allow LANL and its part-

ners to initiate new experiments in neutrino-less double beta decay—a rare nuclear process that occurs when a disintegrating nucleus emits two electrons. In addition, a Stanford University team plans to use WIPP's underground facilities to conduct advanced experiments in subatomic particle research. While mining crews prepare an unused underground research area for the observatory, the team is constructing clean room modules at the Stanford Linear Accelerator Complex for shipment to WIPP.

These research activities, located far from the waste disposal area, have no impact on WIPP's primary mission, disposing of the nation's transuranic waste.

- A truck en route to WIPP was involved in a traffic accident with a passenger vehicle on July 24. The accident occurred just west of Roswell, N.M. No injuries were reported by passengers in either vehicle, and the WIPP truck reported only minor damage to the right front fender and wheel hub of the tractor. The trailer and its payload of three TRUPACT-II waste containers were undamaged. No contamination was released to the environment. The driver of the passenger vehicle received a traffic citation. According to a WIPP spokeswoman, this is just the third traffic accident involving a WIPP truck since waste began being shipped to the facility in 1999. None of the accidents caused any damage to any TRUPACT-II containers.

## DOE Stops Waste Shipments to Hanford

As part of a negotiation with the state of Washington, the U.S. Department of Energy has agreed to stop shipping almost all low-level and mixed radioactive waste to the Hanford site until November 15 or a legal ruling is made, whichever comes first. The state has sued the DOE in federal court to stop the shipments of waste from other federal sites to Hanford. A federal record of decision in June allows up to 62 000 cubic meters of LLW and 20 000 cubic meters of mixed LLW to be sent to Hanford. The state is arguing that the DOE's environmental study was inadequate to support that decision.

Under the agreement with the state, the DOE can continue to ship Naval reactor cores and laboratory waste from the Pacific Northwest National Laboratory to Hanford.

- If the city of Portland, Ore., gets its way, the DOE will never resume waste shipments to Hanford. The Portland City Council, effectively frightened by Sierra Club information stating that the DOE was planning to send "70 000 truckloads of radioactive waste" to Hanford, causing

deaths to at least 10 people, passed a resolution calling for the halt of all waste shipments to the site. Portland wants the shipments deferred until all existing contamination at the site is cleaned up, a process that will take decades.

The DOE disputes the numbers in the Sierra Club materials. The recent record of decision would allow 5600 truckloads (less than a tenth of the Sierra Club number) to be shipped to Hanford, a DOE spokesperson stated. It's "pretty unlikely" that people will die, a spokesman for Oregon's Department of Energy stated.

- Portland's resolution is similar to Initiative 297, which Washington state voters will decide in November. It would attempt to halt nuclear waste shipments from other states to Hanford until the site is cleaned up, by preventing the state from approving permits for new waste facilities.

Initiative opponents are pointing out that the DOE's plans for Hanford involve much more waste *leaving* the site than *coming in*. High-level wastes are to be shipped to Yucca Mountain, and plutonium-contaminated wastes are already being shipped to the Waste Isolation Pilot Plant in New Mexico. If wastes cannot be shipped into Hanford, the DOE may not ship any wastes *out*, either, the initiative opponents are warning.

## Appeals Court Decision Supports Private Fuel Storage

On August 4, the U.S. Court of Appeals for the Tenth Circuit unanimously upheld a lower court's ruling that federal law preempts the laws the state of Utah enacted to block the Private Fuel Storage (PFS) effort to establish an away-from-reactor spent fuel storage facility in the state. Utah had appealed the earlier decision, which had ruled in favor of the challenge to the state laws brought by PFS and the Skull Valley Band of Goshute Indians, on whose land the PFS facility would be built. The earlier court had found that each of the state laws enacted to prevent the PFS facility from operating in the state was preempted by federal law. The appeals court specifically noted that it was not "denigrating the serious concerns of Utah citizens regarding spent nuclear fuel," but that in the area of nuclear safety, "Congress has determined that it is the federal government, and not the states, that must address the problem."

In a 71-page ruling, the court rejected Utah's procedural challenges to the district court decision, as well as the state's attempt to overturn the district court's pre-

emption determinations. The state had argued that neither PFS nor the Goshute Indians had legal standing to bring their lawsuit and that the case was not “ripe” for judicial resolution. The court rejected both arguments, ruling that the state’s interference with PFS’s efforts to secure a license was injury enough (even though the license had not yet been granted) and that the case was ripe for the court’s consideration, even though licensing was still under way.

### Low-Level Waste Updates

- The state of Nebraska and the Central Interstate LLW Compact Commission reached a settlement on the \$151-million judgment against the state over the failed low-level waste disposal project. Under the settlement, Nebraska will pay the compact between \$140.5 million and \$154 million, depending on the payment schedule the state chooses. And, if Nebraska can convince Texas to allow it and the Central Interstate Compact states (Arkansas, Kansas, Louisiana, and Oklahoma) to use a planned LLW disposal facility in that state, the settlement amount will be decreased by \$10.5 million. The agreement must still be approved by the state legislature, which does not convene again until next January.

- Speaking of Texas, Waste Control Specialists LLC has filed an application for Texas approval to operate a low-level radioactive waste disposal facility 30 miles west of Andrews, Tex. A \$500 000 license application fee to the Texas Commission on Environmental Quality was included as part of the 4000-page license application submittal. In the last session, the Texas legislature passed legislation allowing a private facility to be licensed to dispose of LLW from Texas Compact states and from federal facilities, with the disposal activities regulated by state agencies. It also included a provision allowing Texas to consider disposing of out-of-compact commercial waste—for a fee, of course.

WCS currently owns and operates a facility in West Texas for the processing, treatment, storage, and disposal of a broad range of hazardous wastes, and for the storage and processing of LLW.

- The U.S. Nuclear Regulatory Commission has rejected a request from the California Radioactive Materials Management Forum (Calrad Forum) that the agency become more involved in low-level waste disposal matters. The request, in the form of a May 11 letter from Calrad Forum’s technical director, Alan Pasternak, noted changes planned for the Barnwell LLW disposal facility in South

Carolina. Most states currently rely on the Barnwell facility for their LLW disposal needs, but that facility is closing to out-of-compact waste generators in mid-2008. The letter asked that the NRC prepare a white paper on how the United States can best address the potential need for disposal capacity.

The NRC, in a June 30 reply, said that it does not believe that preparing a government white paper to explore disposal alternatives is an appropriate role for the agency. “The designation of the national policy for handling of LLW is a role that Congress has taken for itself,” the NRC stated. The agency is responsible for regulating and not promoting the use of nuclear materials.

The letter added that the NRC would continue to work cooperatively with Congress and others in their efforts to bring resolution to this important issue, “consistent with its regulatory authority and mission.”

### International Briefs

- The Nuclear Decommissioning Authority (NDA), the United Kingdom’s new waste cleanup agency, was on course for its October 1 debut with the July 23 “royal consent” to pass the government’s energy bill. The NDA will operate as a “shadow” body from October until its scheduled operational start in April 2005. It will take over the responsibility of cleanup of the country’s greater than 50-billion-pound (\$92-billion-plus) nuclear waste legacy over the next century.

- Australia has abandoned plans to construct a national low-level waste repository in South Australia and has told each state to construct its own LLW facility, to international standards. This would seem to conclude a 12-year, bipartisan effort to locate and license a single national facility. The Commonwealth, owner of most of the existing low- and intermediate-level waste, will begin looking for a site on commonwealth land, and most likely will co-locate the proposed ILW storage facility there. Australia produces some 45 cubic meters of L/ILW per year.

- No decision has been made on an international waste site in Russia, according to Alexander Rummyantsev, head of the country’s Federal Atomic Energy Agency, and it will be several years before such a decision can be made. He was responding to a statement by International Atomic Energy Agency Director General Mohammed El-Baradei that an international nuclear waste storage facility could be built in Russia under IAEA auspices. Russia is the only country that has legal provisions for an international storage facility, but Rummyantsev noted that it was

not a foregone conclusion that the country would ever build such a facility.

- An expanded Janetstown Test and Trials Facility (in Scotland) would be the ideal site for testing difficult decommissioning tasks, the United Kingdom Atomic Energy Authority said. Among tasks mentioned were removing stuck breeder fuel from the Dounreay fast reactor, exploring various techniques for hydrogeological isolation of an intermediate-level waste shaft near a cliff edge, and finding the best solution for immobilizing stored liquid wastes from reprocessing spent fuel from fast reactors. The Janetstown facility has initially been used by an alliance of companies to test a water vapor nitrogen process for cleaning sodium residues from fast reactor coolant systems.
- A 10-year study assessing options for South Korea's high-level wastes is due to report to the government in 2007. Deep geological disposal in crystalline rock is favored on the basis of tests conducted thus far by the Korea Atomic Research Institute, but the question of reprocessing spent nuclear fuel remains open.
- Ukraine's cabinet confirmed the controversial arch design concept for the new confinement at Chernobyl-4. The decision constitutes final consent for the design, urged by Ukrainian President Leonid Kuchma, given the announcement last March that the European Bank for Reconstruction and Development that it would support confinement construction. However, a government statement said that the Ministry of Fuel and Energy and Chernobyl plant managers have been told to take into account recommendations of the Ukrainian Investment Examination Service during the design's engineering phase.
- The Japanese town of Mihama in Fukui Prefecture has approved a plan to invite Kansai Electric Power Co. to build an interim spent fuel storage facility, although the prefectural government and the firm are opposed to the idea (Kansai operates three nuclear power plants in the town). The town's mayor has said his town is willing to host the facility and will hold talks with Kansai over its construction after obtaining the town assembly's approval. Kansai, on the other hand, has plans to build the facility outside Fukui.
- Decommissioning the Swiss nuclear power plants will cost a total of 1.8 billion Swiss francs (approximately \$1.5 billion U.S.), according to the latest estimates. The national decommissioning fund, established in 1984, contained 971 million Swiss francs (some \$777 million) at the end of 2003. The fund will also be used to cover projected costs for decommissioning the utilities' interim spent fuel and waste storage facility at Wuerenlingen. A separate fund has been established for the costs of spent fuel and waste management; it contained approximately 1.8 billion Swiss francs at the end of 2003; the cost of spent fuel and waste management has been put at 12 billion Swiss francs (around \$9.6 billion).
- British Nuclear Fuels plc has announced that it plans to spend 400 million pounds (\$740 million U.S.) in the next two years on new facilities to allow overseas customers to return high-level waste, to provide more secure storage against terrorism for special nuclear materials, and to accelerate its efforts to deal with the increasing hazards presented by old radioactive waste storage pools and silos. The announcement was made in response to criticism from U.K. Energy Minister Stephen Timms over the company's prior "poor communication" about "near-term work plans" that might provide business opportunities to interested contractors.
- On July 16, the environment ministry in the Germany state of Rhineland-Palatinate issued the first permit for the start of decommissioning of the Muelheim-Kaerlich nuclear power plant. The German utility RWE had announced plans to begin decommissioning the plant in 2000, and in 2001, reached an agreement with the German government, which wants to limit the operating lifetimes of the country's nuclear power plants, allowing the utility to transfer lifetime production rights totaling more than 107 terawatt-hours from Muelheim-Kaerlich to other nuclear units.
- U.K. Trade Secretary Patricia Hewitt has pledged 15 million pounds (\$27 million U.S.) toward a spent fuel storage facility at the Russian Atomflot port in Murmansk. The facility will allow spent fuel currently stored on board the *Lotta*, a nuclear fuel supply ship, to be stored on land. Construction of the facility was expected to begin this fall, with operation expected in early 2006. The latest U.K. commitment comes on top of an earlier 33-million-pound pledge from the country, all part of a total of \$20 billion over 10 years pledged by G8 countries to counter the proliferation of nuclear material.
- Two Russian nuclear submarines have successfully been dismantled under a bilateral Norwegian-Russian program. The 10-million-euro (\$12-million) program was intended as a pilot project to test dismantling techniques and to encourage other countries to contribute to a broader dismantling program.
- The U.K. nuclear industry's shares in Nirex Ltd. will pass to a new company in a move to make Nirex independent of the industry. Nirex was set up in 1982 to study primarily intermediate-level-waste disposal. A new government-owned "Company Limited by Guarantee" will be set up jointly by two government departments to hold the shares in Nirex and oversee its business operations. The longer-term future of Nirex will be decided in 2006, when recommendations are due to be presented to the government on long-term plans for the nation's higher activity wastes. ■