

***A report from the Embedded Topical Meeting on Decommissioning and Spent Fuel Management, June 1–5, 2003, San Diego, Calif.***

## Low-Level Waste Disposal in the United States—Status Update

A session at the Embedded Topical Meeting on Decommissioning and Spent Fuel Management, held June 1–5, 2003, in San Diego, Calif. (as part of the American Nuclear Society 2003 Annual Meeting) provided overviews of the operating LLW disposal and storage facilities in the United States, plus views from waste generators, a compact commission, and a utility trying to ship a reactor pressure vessel (RPV) to the Barnwell, S.C., LLW disposal site.

### THE DISPOSAL SITES

There are three sites in the United States licensed to dispose of commercial LLW: the above-mentioned Barnwell site (all waste classes, open to all generators until June 30, 2008), the Envirocare of Utah site (Class A waste only), and the US Ecology site in Richland, Wash. (open only to the states in the Northwest and Rocky Mountain LLW Compacts). A fourth site may become available in Texas (the Texas legislature just passed authorization for such a facility), although it may be available only to Texas and perhaps Vermont. Representatives from three of these four sites discussed the options their facilities give to today's LLW generators.

William Dornsife, from Waste Control Specialists LLC (WCS) in Texas, described his company's facility, which currently can dispose of nonregulated waste and provide storage for higher grades of LLW. What WCS would like to become, however, is a Class A (or higher) disposal site for commercial and federal waste,

in keeping with the terms of the recently passed Texas law allowing a private entity to provide nuclear waste disposal services in the state. The company's site already meets state regulations, and WCS hopes to apply for a state license to expand its disposal capacities in line with the new law. (*Ed. note:* for more information on WCS, see "Is There Relief Ahead on the Low-Level Waste Front?" this issue, p. 12.)

Al Rafati, from Envirocare of Utah, noted at the beginning of his presentation that today generators

More money is spent in waste characterization, packaging, and transport, which are all complex and costly operations. Envirocare is working to add capabilities in these areas, to help ease the burden on the people who ship waste, Rafati said. Collaborating with waste generators over the past several years on services that Envirocare can provide has been a "key aspect" of the company's success.

Looking forward, Rafati questioned whether the facility really needs a Class B and C license (the company had requested such a license

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can dispose of large quantities of low-activity waste for some \$2 to \$3 per cubic foot. And, he said, they can dispose of small quantities of higher activity waste for some \$200 to \$300 per cubic foot. This information, he added, was all he was going to say about costs, which prompted laughter from audience members, who are always trying to get cost information from Envirocare presenters at conferences.

Rafati then went on to note that disposal costs are actually only about 15 percent of waste life cycle costs.

from the state of Utah but put that request on hold while the state disputes the siting of Private Fuel Storage's spent fuel storage facility elsewhere in Utah on Native American reservation land). Can we rethink how we operate nuclear power plants to eliminate this kind of waste, he asked—by disposing of resins earlier, for example. The company is studying the economies of earlier resin disposal (spending more on resins but less on disposal).

And every day, Rafati said, Envirocare is working with customers and

regulators to come up with better solutions for waste disposal. Yes, he responded to an audience question, they can take steam generators for disposal, and “a number of them are

kee vessel arrived at the Savannah River Site on May 31 and was on its way to disposal, Antonucci said. The Big Rock Point vessel is due in late 2003, the Connecticut Yankee vessel

type of access, Pasternak said.)

● Action from Congress similar to that in the high-level waste arena, directing the DOE to build an LLW disposal site on federal land, to be regulated by the U.S. Nuclear Regulatory Commission.

Is there a downside to this proposal? Pasternak asked rhetorically. Yes, he answered, it rewards bad behavior on the part of states. Nonetheless, he said, his proposal remains the only “real” solution to the problem, and there is “substantial concern” on this issue among the staff of the Senate Energy Committee, he concluded.

Kathryn Haynes, from the Southeast LLW Compact Commission, said there were prospects in sight for additional disposal capacity, but at the moment they are only prospects. We don’t *know* if a new site in Texas will be licensed, she said; we don’t *know* if Envirocare will expand its services.

She then went on to describe a survey her commission conducted recently of waste generators in the Southeast Compact. The commission sent out 282 questionnaires and received 72 responses (about 25 percent). Of those 72 respondents, 27 (more than a third) have made no plans for B/C waste disposal after 2008. Indeed, she said, some were not even aware that their access to disposal would end that year.

If you want something new to happen, she told the session, you are going to have to organize, and *you* are going to have to make it happen. De-

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in the queue.” In addition, he noted, the company is looking at ways it might be able to take RPVs.

In response to another audience question, he acknowledged that former Envirocare president Charles Judd is proposing to construct a competing LLW disposal facility on land immediately north of the facility, and “we wish him well.” If there is more than one facility, Rafati said, “we will no longer have to justify our costs to the government at every turn.” In fact, he said, there is land available on other sides of the Envirocare facility if anyone else wants to open yet another competing site.

George Antonucci, from Chem-Nuclear, which operates the Barnwell facility, described the agreement his company made with the state of South Carolina that resulted in the formation of the Atlantic LLW Compact (with South Carolina, Connecticut, and New Jersey as members) and the projected closing of the Barnwell site to out-of-compact generators in 2008. The company has not asked the state, either formally or informally, to change that law, Antonucci said, but he added that the state is now facing a \$300 million budget shortfall and that the Barnwell site has some 2 million ft<sup>3</sup> of space still available (which, he estimated, could handle the waste from all of the nuclear power plants operating today, through decommissioning).

In the meantime, with the excessive spring rains this year in the South, the Savannah River is full enough for barge shipments again, so the queue of RPVs destined to be sent to the site is starting to move. The Maine Yan-

is due in mid- to late 2003, and the latest projection is that the San Onofre-1 vessel is due in late 2003/early 2004. (The San Onofre vessel shipment is the subject of a presentation made at the end of the session—see “Singing Sad SONGS” below.)

#### GENERATOR AND STATE VIEWS

The fact that after 2008, some 36 states will not have assured access to disposal sites for Class B and C radwaste is prompting Alan Pasternak, from the CalRad Forum—the California Radioactive Materials Management Forum, an association of waste generators—to declare that the

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Low Level Radioactive Waste Policy Act of 1980 (and the subsequent Amendments Act) is “not working” and to propose a radical two-pronged solution:

● Authorization for *interim* use of a U.S. Department of Energy LLW disposal site for those states that have no access to a compact site. (Energy secretaries from Hazel O’Leary on have rejected California’s request for this

development of new capacity will require a concerted effort by LLW generators, she said, and will involve defining the need, organizing, convincing private companies of the demand, minding the politics, and working with the compacts and states.

On the plus side, Haynes announced the free availability of a new national directory of waste brokers and processors (and trans-

porters) on the Internet. Sponsored by the Southeast Compact and the LLW Forum, the directory is available at [www.bpdirectory.com](http://www.bpdirectory.com).

## ***SCE looked at vessel segmentation for the SONGS-1 RPV, but felt it was “radiologically irresponsible” to do that.***

### **SINGING SAD SONGS**

The sad saga of the attempt to ship the San Onofre Nuclear Generating Station (SONGS) Unit 1 RPV to Barnwell for disposal served as the concluding presentation of the session. Tim Clepper, of Southern California Edison (SCE), noted that the project is almost a year behind schedule because of transport and disposal issues.

In brief, SCE wants to send its 770-ton RPV to the Barnwell LLW disposal site, which lies clear across the country in South Carolina. (The utility looked at vessel segmentation but felt it was “radiologically irresponsible” to do that, Clepper said.) SCE’s original plan (the “Base Plan,” Clepper called it) was to ship the RPV by rail to Houston, then ship it by barge to the East Coast, send it by rail again to Barnwell, and finally, land haul it to the Barnwell trench. (At the time the plan was made, years of drought had rendered the Savannah River too low for large barge shipments, and experts projected that it would take years for the river to recover—although, as previously noted, all it took was one really, really wet spring.) This plan, however, turned out to be “not within the railroads’ risk profile,” Clepper noted. For one thing, the one existing heavy-haul railcar large enough to take the vessel can travel only 25 miles per hour empty and only 15 mph if it were loaded with the San Onofre RPV. Having such a large, slow load tying up rail lines from California to Houston was too much for the railroads to even consider.

So, on to Plan B, or what SONGS termed the First Contingency Plan, which called for a rail shipment only to Oceanside, then a barge shipment through the Panama Canal to the East Coast, then rail to Barnwell, and

land haul to the trench. But the railroads again said no, and the Panama Canal authority denied the utility the use of the canal as well, citing a load

limit of 150 tons for radioactive packages. (Interestingly, back in 1965, the pressure vessel was shipped from the East Coast to San Onofre via the Canal. “You would think you could go back that way!” Clepper said.)

So, SONGS went to the Second Contingency Plan. This plan calls for land haul to Oceanside (through a state park and the U.S. Marine Corps’ Camp Pendleton, and on the beach), barge transport around South America to the East Coast (around Cape Horn, though the utility is attempting to get permission to go through the Straits of Magellan), then rail to Barnwell, and land haul to the trench. But as the utility makes the final schedule for the shipment, it must consider such factors as stream flow in California, breeding seasons for endangered species, tidal conditions, the hurricane season, the duration of the transit (up to three months), and disposal availability, Clepper said.

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The barge shipment will use two tugboats, one to pull the barge and the other to run into ports for fuel and supplies, so that the load never has to go into port until it reaches the South Carolina coast. If there is an accident

at sea and the vessel sinks into the ocean, SCE will have to recover it.

One problem San Onofre experienced during the planning and re-planning process was exceedingly bad publicity, both locally and nationally. Originally, Clepper noted, the utility had attempted to keep a low profile about the project, which turned out to be the wrong plan! The news media reported on every detail of the utility’s problems, and antinuclear groups were able to use the story to accuse the utility of failure to plan properly for decommissioning Unit 1. Today, the utility is following a new plan, which is attempting to make the project known and understood “by all.” (Even George Antonucci, during his earlier presentation, was able to poke a little fun at SCE, stating that the San Onofre vessel would be coming to Barnwell later by “being shot to the moon” and that the utility hoped following its reentry to earth it would magically land in the Barnwell trench.)

In the meantime, Clepper said, the utility has some 28 to 30 contracts in place to manage the project. Asked when the shipment will actually begin, Clepper said it would be “later this year” but that the utility prefers not to say precisely when (“part of our new open communication plan,” he quipped). Total costs for the shipment will come in at \$10 million to \$15 million.

During the audience question period, Richard St. Onge, also from SCE,

prompted Clepper with the question, “If the Ward Valley waste facility had opened, would we have been able to ship the vessel by train to that site?” And, of course, Clepper said, “Yes!”—*Nancy J. Zacha, Editor* ■