

THE NUCLEAR NEWS INTERVIEW

Cal Rad Forum's Alan Pasternak: Time is running out for a permanent LLW solution

Disposal facilities at three sites in the United States currently accept commercial low-level radioactive waste (LLW). The sites are Chem-Nuclear Systems, Inc.'s facility in Barnwell, S.C.; Envirocare of Utah, Inc.'s site in Clive, Utah; and U.S. Ecology's repository in Richland, Wash. Currently, Barnwell accepts more than 95 percent of the country's LLW, measured by radioactivity, that is sent for disposal.

Beginning July 1, 2008, when use of Barnwell is restricted to the Atlantic Compact, organizations that use radioactive materials in as many as 36 states will have no place to dispose of their Class B and C wastes. The reason is that the Utah facility is not licensed to accept these wastes, and access to the Richland facility has been restricted to the eleven states in the Northwest and Rocky Mountain compacts since 1993.

As dire as that sounds, disposal options shouldn't be a problem, according to a Government Accountability Office (GAO) report, "Low Level Radioactive Waste: Disposal Availability Adequate in the Short Term, but Oversight Needed to Identify Any Future Shortfalls" (*NN*, Nov. 2004, p. 56).

Alan Pasternak, technical director of the California Radioactive Materials Management Forum (Cal Rad Forum), begs to differ. Some members of the Cal Rad Forum, he said,

Beginning in 2008, the Barnwell repository will severely curtail the amount of low-level radioactive waste that it currently accepts, yet today there is no national plan for a replacement site.

already find that they must store LLW on site because of limited and expensive off-site disposal options.

The Cal Rad Forum was founded in 1983 to encourage response from the state of California to the Low-Level Radioactive Waste Policy Act of 1980. Membership of the Forum was drawn originally from California, but was later expanded, when the Southwestern Compact was ratified, to include users of radioactive materials in Arizona, North Dakota, and South Dakota. Membership now includes utilities owning nuclear power plants, universities, biomedical firms and other industrial firms, pharmaceuti-

cal companies, medical centers, and some local chapters of professional societies in medicine and radiation safety. LLW generated by Forum members includes tools, clothing, laboratory equipment, biological tissue, ion-exchange resins, and decommissioning wastes.

The Nuclear Regulatory Commission classifies waste based on hazard. LLW—which is not high-level waste, spent fuel, transuranic waste, or by-product material, such as uranium mill tailings—has four subcategories: Classes A, B, C, and Greater-Than-Class-C (GTCC). (By law, disposal of



Pasternak: "The country needs a national solution for this national problem."



GTCC waste is a federal responsibility.) Class A—the lowest hazard—comprises about 99 percent of LLW by volume, but the remaining 1 percent made up of Classes B and C contains about 97 percent of the radioactivity. Indeed, the Class B and C wastes from the 36 states that will lose access to Barnwell in 2008—wastes that are now disposed of at Barnwell—contain about 91 percent of the radioactivity in the total LLW disposed of at the three sites by users of radioactive materials in all states.

On average, Class A is primarily contaminated with short-lived radionuclides (average concentration: 0.1 Ci/ft³). Class B may be contaminated with a greater amount of short-lived radionuclides (average concentration of

2 Ci/ft³). Class C may be contaminated with greater amounts of long-lived and short-lived radionuclides than Class A or B (average concentration: 7 Ci/ft³). GTCC is the most radioactive of LLW classes (average concentration: 300 to 2500 Ci/ft³).

Pasternak testified about disposal problems and possible solutions during a September 30 hearing of the Senate Committee on Energy and Natural Resources. (Information about the hearing, including testimony of the witnesses, is available on the committee's Web site at <www.energy.senate.gov/hearings/witnesslist.cfm?id=1320>.)

Pasternak talked about LLW issues with Rick Michal, *NN* Senior Editor.

The Government Accountability Office (GAO) recently reported that there may be a shortage of Class B and C disposal sites by 2008, but they don't seem worried about it. Why are you?

I think the GAO underestimated both the seriousness of lack of access to disposal facilities for B and C wastes and the urgency for doing something about it. Nowhere in the GAO's report is there an estimate of how long it would take to develop a disposal facility. It doesn't understand the government's need for disposal. The fact is that government agencies—with the exception of the Department of Energy, which has its own disposal facilities—rely on the same commercial disposal facilities as industries and institutions such as universities and medical centers.

It's fair to say that the GAO views indefinite on-site storage as an acceptable alternative to permanent disposal. While that can be practiced and is done safely, it's not an acceptable alternative to permanent disposal because it detracts from public confidence that use of radioactive materials for beneficial purposes is being done well. The Nuclear Regulatory Commission favors permanent disposal instead of indefinite, on-site storage, and the fact is that the public knows that these materials should be disposed of properly. Furthermore, when a facility where radioactive materials have been used is decommissioned, all the LLW must be removed and disposed of; on-site storage is no longer an option.

The GAO report does provide for some options, such as repealing the Low-Level Waste Policy Act of 1980 (the Act), true?

Yes, but it doesn't say how that would necessarily accomplish an objective. Cal Rad Forum does not favor outright repeal; we think the Act should be amended. For example, pursuant to the Policy Act, Congress has granted consent to 10 regional interstate compacts. But the country doesn't need 10 disposal sites. One or two more

sites would be sufficient if licensed for all three classes of LLW: A, B, and C. The states of South Carolina and Washington have operated their disposal facilities at Barnwell and Richland in good faith. They should be allowed to continue to do so under the protections of the Policy Act. Any other states, such as Texas, that want to develop a regional disposal facility pursuant to the Act should be encouraged to do so. However, there is still the problem confronting 36 states that lose access to Barnwell on July 1, 2008.

Furthermore, the GAO report missed the fact that the Envirocare facility, in Utah, where about 98 percent of the waste volume is disposed of, does not accept sealed sources or biological tissue waste. That is of great concern to the biotechnology industry.

What the report does get right is the option that DOE disposal facilities might be opened to commercial LLW. Cal Rad Forum favors this option as a near-term solution. The bottom line, however, is that the report lacks a sense of urgency, and I don't think it understands or reflects the need for permanent disposal.

The Act makes a recommendation that states should get together to form compacts

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to site LLW disposal facilities, but it has no teeth to enforce its recommendation, does it?

It doesn't anymore. The Act at first was more than a recommendation in that it explicitly made it a state responsibility to dispose of these wastes. Disposal had always been a state responsibility, but I don't think anywhere in federal law had it been explicitly stated that it was the case. There have been a number of disposal facilities in addition to the three in existence now. There was one that operated in Beatty, Nev., until 1993, and there were others that were older than that. Those are all closed now.

So the LLW issue had always been handled by the states, and the Act made it explicit that LLW disposal is a responsibility of the states.

The Act included both a carrot and a stick. The carrot was the ability to form interstate compacts and restrict access to a compact's regional disposal facility only to users of radioactive materials within the member states of the regional compact. In this way, no state would bear the perceived

imburse the expenses of the CICC and other entities in funding the failed effort to develop a disposal facility.

There are other lawsuits ongoing regarding LLW disposal siting, aren't there?

Yes, the Act has a legacy of litigation. It has yielded 10 interstate compact commissions, three lawsuits, but no new disposal facilities. In addition to the CICC/Nebraska lawsuit, the Southeast Compact Commission sued North Carolina in 2002 for \$90 million for its failure to develop a disposal facility. The parties to that suit also include four individual states—Alabama, Florida, Tennessee, and Virginia—and because states are suing a state, the lawsuit went directly to the U.S. Supreme Court. That suit is pending before the court, which has appointed a special master to take testimony.

There is a third lawsuit. US Ecology—which was the state of California's licensee and disposal facility developer—sued California in 2000 in state court for about \$160 million to recover its expenses. The suit was filed when California ceased its efforts to persuade the federal government to transfer federal lands at Ward Valley to the state. In 1997, California and US Ecology had sued the Interior Department in federal court to force the land transfer. However, US Ecology was left to pursue the lawsuit on its own when Gov. Gray Davis (D., 1999–2003) and California dropped out as a plaintiff. As a result, the federal court said it could not fashion a remedy for US Ecology because the state had dropped out, and that even if it ordered the U.S. Department of Interior to transfer the land to California, there was no guarantee that the state would accept it. US Ecology then followed up and sued California in state court. The company didn't do very well at the trial court level, but they filed an appeal and they're waiting for the state's response to the appeal.

In total, there have been three lawsuits, but none of them is likely to lead to development of a new disposal facility.

With the Act not having much of an effect on the states and with these lawsuits going on, will the DOE ultimately end up taking commercial B and C wastes and disposing of them at DOE sites?

I don't know. That decision may be up

to the Congress. The whole effort to develop new disposal facilities depends on political will, but the states, for the most part, have lacked the necessary political will. The federal government itself during the years of the Clinton administration lacked the political will to transfer the Ward Valley site to California, largely, in my personal opinion, because of opposition from some in the entertainment industry, which included a number of President Clinton's supporters. There was a group in California called Americans for a Safe Future that included such "nuclear experts" as Mike Farrell, Ed Begley, Jr., Barbra Streisand, and Robert Redford. Don't you suppose that those celebrity names on the organization's literature registered with President Clinton? California seriously tried to develop a disposal site, under Gov. George Deukmejian (R., 1983–1991) and Gov. Pete Wilson (R., 1991–1999), and issued a license for Ward Valley in 1993, before it decided under Gov. Davis to make a U-turn. It really is a question of political will.

No solution is going to be without controversy, of course, generated by those who oppose the use of radioactive materials. There are a number of groups on record saying there should be no more production of radioactive waste, which essentially means no use of radioactive materials. Whatever solution is proposed—whether it is a new disposal facility, or the opening of existing DOE facilities for disposal of waste from commercial entities and other federal agencies—opponents will do their best to create controversy in the host states. That's why it's going to take political will to get the job done.

Congress and President Bush demon-

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burden of being the so-called “nuclear dumping ground” of the nation. That was the carrot, and it's still there.

The stick was the so-called “take title” provision under which any state that did not make provision for disposal of LLW generated within its borders was required to take title and possession of the wastes at the request of the waste generator. The Supreme Court, in a lawsuit filed by New York State in the early 1990s, struck down that provision. With that decision, the stick was gone—or the Act's teeth, as you referred to it, were gone. The only recourse is that those organizations that have been harmed by the states' failures to develop new disposal facilities can sue those states for recovery of monetary damages. But this does not solve the disposal problem.

That is what happened recently with the Central Interstate Compact Commission and the state of Nebraska, wasn't it?

That's right. The Central Interstate Compact Commission (CICC), which had funded Nebraska to develop a disposal facility, won a lawsuit against the state for its failure to develop a facility (NN, Oct. 2004, p. 62). There was a finding of bad faith against the state by both the federal district court and the appellate court. The courts found that there was political manipulation of the regulatory process by which a license was refused. The judgment against Nebraska was for \$151 million, and that suit has recently been settled for \$140.5 million. That means that Nebraska would rather cough up \$140.5 million than develop a disposal facility. I do believe there is some agreement between the CICC and Nebraska whereby the CICC will continue to look for some other disposal option outside of Nebraska. If, within some period of time, it is successful, then the judgment will be reduced by \$10 million. But Nebraska would still be out-of-pocket \$130.5 million to re-

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strated political will on a similar issue two years ago. In 2002, Congress voted to override the state of Nevada's veto of the proposed high-level waste repository at Yucca Mountain. The Senate mustered the 60 votes necessary, and they did so over the objection of the Majority Leader—at the time, Tom Daschle (D., S.D.)—which doesn't happen often. We hope—either by access to currently under-utilized DOE disposal facilities, or development of one or two new LLW disposal facilities under the aegis of the federal government, or a combination of the two—that we'll get the job done and solve the LLW disposal problem.

What will happen by 2008 if no action is taken?

If nothing changes by 2008, as many as 36 states will have no place to dispose of their B and C wastes, which contain about 91 percent of the radioactivity in the LLW currently disposed of. Plus, the Envirocare facility in Utah will be the only option in the United States for disposal of a subset of Class A waste, and that's not a comfortable position to be in. Unless something changes, that's where we're headed. That's in less than four years, and given the time it takes to develop a new facility, that's tomorrow.

Waste Control Specialists LLC filed an application for state approval to operate a LLW disposal facility in Texas (NN, Oct. 2004, p. 62). If approved, that facility should be opened by 2008 and will alleviate the situation, won't it?

Yes, but only for Texas and Vermont—the two party states to the Texas Compact.

What about disposal sites for GTCC waste?

It is expected that GTCC waste will eventually be disposed of at Yucca Mountain. Some of it includes some sealed radioactive sources, and the DOE has an Off-Site Source Recovery Program for these sources. We hope that this program, run by the Los Alamos National Laboratory, will be continued until Yucca Mountain is operational and all GTCC waste can be disposed of.

Now that President Bush has been reelected, what effect will that have on the LLW issue?

Over the years, the Cal Rad Forum has worked cooperatively with political leaders on the federal and state levels, from both sides of the aisle, in Washington, D.C., and in Sacramento, Calif. Compared with many issues the government must wrestle with in Washington, this one is easy to solve. As noted earlier, in 2002 the Congress and President Bush demonstrated the political will to move forward on disposal of high-level waste and spent nuclear fuel at Yucca Mountain, so we are optimistic they will take action to solve the problem of LLW disposal. The country needs a national solution for this national problem.

The GAO said in a survey it conducted that only a handful of 2000 radiation safety officers said the disposal issue was a problem. What are they seeing that you don't?

The GAO, working with the University of Texas, sent an e-mail to a distribution list called "Rad Safe." They thought that was a good way to get information, but they received only a handful of replies. Fact is, people read their e-mail and many quickly delete it. Plus, I don't think anybody can claim that all the subscribers to "Rad Safe"

The GAO's report

In June, the General Accountability Office's report, "Low-Level Radioactive Waste: Disposal Availability Adequate in the Short Term, but Oversight Needed to Identify Any Future Shortfalls," was issued to the Senate Committee on Energy and Natural Resources. The report, available as a PDF file at <www.gao.gov/new.items/d04604.pdf>, is a sequel to the GAO's 1999 release, "Low-Level Radioactive Wastes: States Are Not Developing Disposal Facilities." The June report is excerpted below:

GAO identified several changes in LLRW [low-level radioactive waste] disposal availability and federal agency oversight since [the 1999 report] that have had or might have significant impacts on LLRW management by the states. For example, while one disposal facility [Chem-Nuclear Systems, Inc.'s site in Barnwell, S.C.] plans to close to most states and new options are evolving that may counteract this shortfall, federal guidance and oversight of LLRW management has virtually ended.

Annual LLRW disposal volumes increased 200 percent between 1999 and 2003, primarily due to LLRW shipped to commercial disposal by DOE. GAO identified this increase using data from the three commercial disposal facility operators [Barnwell; Envirocare of Utah, Inc.'s, site in Clive, Utah; and US Ecology's repository in Richland, Wash.] . . . The uncertain timing and volume of future waste shipments from DOE and nuclear utilities make it difficult to forecast disposal needs for all classes of LLRW.

At current LLRW disposal volumes, disposal availability appears adequate until at least mid-2008 for class B and C wastes. There are no expected shortfalls in disposal availability for class A waste. If disposal conditions do not change, however, most

states will not have a place to dispose of their class B and C wastes after 2008. Nevertheless, any disposal shortfall that might arise is unlikely to pose an immediate problem because generators can minimize, process, and safely store waste. While these approaches are costly, GAO did not detect other immediate widespread effects. NRC places no limit on stored waste and presently does not centrally track it. However, as LLRW storage volume and duration increase in the absence of reliable and cost-effective disposal options, so might the safety and security risks.

The NRC's comment

Given an opportunity to review the report prior to its release to the Senate committee, the Nuclear Regulatory Commission said the report "provides an accurate summary of current [LLRW] disposal activities and potential issues that may be encountered in the future."

The NRC advised, however, that alternatives to the current storage system be examined by the GAO because "the future availability of disposal capacity and the costs of disposal under the current system remain highly uncertain and LLRW generators need predictability and stability in the national disposal system."

In response, the GAO said that it disagreed with the NRC's suggestion that the GAO commence a study to explore alternative options to the current LLRW management system. "Given current disposal availability through mid-2008, and uncertainties about future disposal availability," the GAO said, "we believe that such an evaluation by us is not needed at this time. As long as NRC places no time limits on LLRW storage and provides assurance that it is safe and secure, any shortfalls in disposal capacity would be manageable in the short term."

are radiation safety officers. I'm a subscriber, but I don't hold that title. The question is, then, out of those 2000 surveys, how many were actually seen by people who could provide an answer or were authorized by their organizations to provide an answer to a branch of the government?

What the GAO should have done was go directly to radiation safety officers. They could have worked through the Conference of Radiation Control Program Directors—an association of state officials who run state radiation control programs. They

could have gone to the organization of NRC agreement states. They could have gone to the Health Physics Society, which has a section for campus radiation safety officers that lists more than 600 members. Instead, they went out to a general list that's on the Internet. It's just not a very good way to do an audit of the situation. There are other ways that would have been more effective.

A National Research Council report from 2001 said that 10 to 20 years would pass

before the lack of a disposal facility might adversely affect biomedical research or clinical practice. Do members of the Cal Rad Forum agree with that finding?

No, they don't agree with it. I've asked some of our members about it, and the responses I get are that the lack of disposal facilities will lead to increased costs of storage and increased requirements for surveillance. These costs eventually wind up being passed on to consumers and ratepayers, of course. Other concerns expressed by our members deal with difficulties in making repairs to facilities and delays in decommissioning their facilities. For example, if a company grows and wants to move out of

an old facility and into a larger one, it has to decommission and terminate the license of the old facility. That means clearing the site of radioactive material and waste. If that company has that waste in storage and has no place to send it, their relocation would be put on hold. This is not an unusual occurrence in California, as there are something like 150 to 200 such license terminations each year.

There also have been curtailments in research. I know of one medical facility in California where for several years they have restricted or eliminated large-animal research because of the difficulties and cost of disposing of the waste resulting from that research.

What is important to keep in mind, as the NRC pointed out in their comments on the GAO report [see sidebar], is that "the future availability of disposal capacity and the costs of disposal under the current system remain highly uncertain and [LLW] generators need predictability and stability in the national disposal system."

What has California's current governor, Arnold Schwarzenegger, had to say about this issue?

We have met with the governor's people to discuss issues having to do with the use of radioactive materials in California, decommissioning, and waste disposal. We're waiting to see what position he takes. But there is a problem in California that you and I haven't discussed. Several years ago there was a successful lawsuit brought by opponents of the use of radioactive materials, when state regulators tried to adopt the NRC's license termination standard used in a majority of states around the country. That standard is 25 millirems a year residual dose to anybody at a facility that has been decommissioned. Because of the court's ruling, California is now the only state in the country that lacks a clear numerical dose standard for decommissioning and license termination. It was a crazy decision that certainly should have been appealed, but Gov. Davis did not act. Because of that, the process of decommissioning facilities in California now relies on a narrative standard that was in existence long before the NRC's dose-based standard was put into effect. It has slowed things down. So, we have apprised Gov. Schwarzenegger of that problem also.

As to what position he decides to take with respect to LLW disposal, we don't know yet. We have also met with staff of the California Department of Health Services to discuss these issues.

Do you have support for your cause on the national level?

The September 30 hearing of the Senate Committee on Energy and Natural Resources was very encouraging. Members of that committee are certainly familiar with the LLW disposal issue. In the 1990s, committee members from both sides of the aisle tried to persuade the Interior Department to move forward on the requested Ward Valley land transfer. At the end of the hearing, Chairman Pete Domenici (R., N.M.) offered the opinion that something needs to be done sooner rather than later. There have been some follow-up questions from members of the committee to which we have submitted answers for the record. We look forward to working with the committee and its staff, and hope that legislation will be introduced to develop a national solution for this national problem. ■■