

## CALIFORNIA GRANTS WARD VALLEY LICENSE

Despite opposition, the Southwest Compact is one step away from an LLRW facility.

**O**N SEPTEMBER 16, CALIFORNIA's Department of Health Services (DHS) granted the firm U.S. Ecology (USE, Houston, TX) a license to bury low-level radioactive waste (LLRW) in the Mojave Desert's Ward Valley, essentially placing the Southwest Compact's LLRW disposal in the hands of the federal government. The compact comprises Arizona, California, North Dakota, and South Dakota. Now the planned disposal facility needs only the transfer of the 1,000 acre site from the U.S. Bureau of Land Management of the Department of Interior (DOI). In an August 11 letter to California Governor Pete Wilson, DOI Secretary Bruce Babbitt agreed to transfer the land "expeditiously" if a public hearing "discloses no new information suggesting the site is not an appropriate one for [an LLRW disposal facility]." After eight years of hearings, lawsuits, and other delays, a public hearing—even if limited to experts—may seem only one more burden for Ward Valley proponents, but many are optimistic after the recent licensing.

"This certainly is a major step," said Alan Pasternak, PhD, technical director of California Radioactive Materials Management Forum (Cal Rad Forum, Orangevale, CA), which supports the disposal site. "We're excited that it is a sign of progress, that you can find sites for LLRW," said Steve Unglesbee, spokesman for Media Relations of the U.S. Council for Energy Awareness (Washington, DC). "We have the technology for [radioactive waste] disposal—it is known, established, and used. What has been lacking has been government leadership, and we're glad to see it surfacing in California."

While certain other Ward Valley proponents may be equally pleased about



Photo: Courtesy US Ecology, Inc.

the recent state and federal action for the site, they remain cautious. "Unfortunately, as I've been working on this so long, all I can say is [the licensing] is an important movement forward," said Donna L. Earley, Cal Rad Forum chairperson. "I know what the opponents can do, so I can't say it's a major breakthrough." Even Dr. Pasternak warns of troubles already brewing in the land-transfer process. "The way Babbitt laid things out, there is supposed to be a hearing officer that is acceptable to all sides. But his staff is suggesting an individual who is not available until year's end, while Babbitt wanted the hearing by November 1. Also, the hearing is supposed to be in Ward Valley's San Bernadino county, but his staff is putting forth an official who won't sit there." These apparent quibbles reflect divisions that run deeply through many levels and departments of government, and that have plagued the project's history and delayed its licensure and development (see *Newsline*, September 1993). Ward Valley opponents both within government and society have

virtually elevated their cause to an ideological symbol. Nevertheless, as Ms. Earley hopes, the licensing and the experts-only hearings mean "now we can use scientific and not just political arguments." The problem is, both sides claim the mantle of science.

### The Project's Rough History

The Ward Valley site's rocky history began in 1982, when the California legislature—after the U.S. Low-Level Radioactive Waste Policy Act of 1980 (LLRWPA) left Classes A, B, and C low-level waste disposal to the states\*—directed the DHS to develop screening criteria for an LLRW site and identify regions likely to meet the standards.

Subsequent legislation allowed the state to select a private company to site, build, and operate the disposal facility,

\*The Ward Valley facility will receive only Classes A, B, and C low-level radioactive waste. California has adopted the classification code from Chapter 10, Part 61.55 of the Code of Federal Regulations, which is based on individual radionuclide characteristics and the concentrations of the radionuclides in the waste. Class A

and in 1985, California chose U.S. Ecology, a company then based in Louisville that ran other LLRW sites in the U.S. Though the company began site selection in 1986, activists were already opposing the LLRW disposal project, partly spurred by what they perceived

is mainly radionuclides with short half-lives, a waste posing little environmental or public health threat. Most of its activity should decay to background levels (the average amount present due to "natural" radiation) within 100 years after disposal.

Class B waste is a mix of radionuclides, some with short half-lives and some with longer lives, which include some transuranic elements and some mobile nuclides. Class C wastes are more highly radioactive. This class includes mostly transuranic and highly mobile radionuclides.

was the contractor's questionable track record. The next year, USE narrowed 18 candidate sites to three, including Ward Valley, a wide, flat desert between mountain ranges, about 25 miles west of Needles, CA (see map), and began field investigations with the help of local advisory committees formed by the League of Women Voters. It settled on Ward Valley as the environmentally safest site, and in 1989 submitted a 7,000-page license application to DHS.

But by the next year, the opposition had built enough political muscle to knock sizable bruises in the Ward Valley effort. In 1991, after the State Lands Commission had committed itself to arrange the transfer of federal lands to

the state, the commissioner, who was running for governor, reneged on the commitment and made Ward Valley an issue in the gubernatorial race (another major candidate also opposed the project). The Commission's policy reversal led to the DHS's taking over responsibility for the land transfer. But the opposition then worked another flank. During the confirmation hearings of Health and Welfare Secretary-designate Russell Gould and DHS Director-designate Molly Coye, the California Senate Rules Committee directed both confirmations to hinge on the nominees' promises to hold limited adjudicatory hearings before granting a Ward Valley license. This led to a lawsuit by a group of Ward





Valley proponents, which included SNM, contending that the adjudicatory hearings were illegally coerced and asking the DHS to decide on the license without further hearings. The California Third District Appellate Court ruled in May of this year that the adjudicatory hearing agreements were void. The Senate Rules Committee appealed the decision, and the California Supreme Court rejected the request in August.

Though the licensing may be the major milestone so far, the delays in issuing the license have made some proponents wary of the opposition's persistence and ability to work the legal and political system. Already, immediate land transfer will put the disposal facility opening around early 1995, two years after the federally mandated January 1, 1993 deadline. Past delays in establishing a disposal site for the compact are now edging its LLRW generators perilously close to having no access to any disposal facility. On July 1, 1994, the compact will no longer have access to the Barnwell, SC, disposal site (unless South Carolina and the Southeast Compact elect to extend the access another year). Southwest Compact waste has also gone to Hanford, WA, and Beatty, NV, sites, but these are also closing their doors. The LLRW that has been in excess of what can go to these other facilities now fills up on-site storage at hospitals, pharmaceutical companies, and nuclear power plants. But as this on-site waste becomes cumbersome and expensive, some industry watchers are nervous that members of the state's large biotechnology and pharmaceutical industry will start looking to move elsewhere—and take jobs from an economically strapped state. Chiron (Emeryville, CA), anticipating delays at Ward Valley, has planned a special storage facility for the meantime, for the 90-100 drums of LLRW it produces per year. Other companies, like Microgenics (Concord, CA) and Glycomed, (Alameda, CA) are developing techniques that do not use radioactive materials. California alone has 2,254

## Ward Valley Dispute Rages Over Statistics, Geology

### *The Numbers Game: What is the Source Term?*



From various governmental sources, Committee to Bridge the Gap (CBG) compiled a breakdown of LLRW destined for Ward Valley that showed almost 98% of radioactivity would come from nuclear reactors and only 0.08% from medical treatment, diagnosis, and research (Table 1). Certainly, nuclear waste is nuclear waste, whatever its source; and, by law, the waste going into the site cannot be hazardous after 500 years. But these percentages differ markedly from the figures proponents cite—roughly two-thirds of activity from biomedical sources and one-third from "other." As most discussion about the deleterious results of having no disposal site concerns the loss to medicine, the difference in statistics makes a difference in how the public views the facility and its public-relations package. The CBG statistics have landed in the hands of influential politicians, including U.S. Senator Barbara Boxer of California, who has mounted a statewide campaign against Ward Valley and cites the CBG statistics and other controversial data. According to Nicki Hobson, public relations consultant for Cal Rad Forum, Sen. Boxer has "said there has been a cover-up, hidden scientific evidence, and has been trying to ratchet up the [land-transfer] hearing to a full adjudicatory hearing, which could last years."

Proponents do not mince words about the CBG numbers. "That information on waste sources is absolutely wrong," said Mr. Romano. Ms. Earley echoed that verdict. Proponents contend that CBG has confounded Classes A, B, and C LLRW from nuclear power plant decommissioning with greater-than Class C wastes, which form a significantly greater amount of the radioactivity and by law



licensees, and they cannot readily drop their use of radioactivity or continue stockpiling more and more hazardous materials on-site. In 1992, according to an NRC report, the Southwest Compact generated 102,946 ft<sup>3</sup> of LLRW.

Some Ward Valley proponents see the opposition taking advantage of a dire situation to push a larger agenda and force radioactivity users into cutting back their use, even though there remains a need to store what's already been generated. "The opponents are basically out to stop use of nuclear materials," said Ms. Earley. But some opposition leaders seem to have the savvy to operate from both an ultimate ideal and a practical ideal. Dan Hirsch, president of the prominent opposition group Committee to Bridge the Gap (CBG), admits that it is not possible to cut out all uses of radioactive materials. Instead, he outlines a scenario somewhat analogous to the idea of the "3 R's" in animal research, in which investigators strive to reduce the amounts of animals per experiment, replace animals with in vitro or other methods, and refine experimental design to reduce pain and increase data. Hirsch feels that users of nuclear materials should be given incentive to substitute short-lived or lower-energy isotopes when possible, for example <sup>32</sup>P or <sup>35</sup>S instead of <sup>3</sup>H or <sup>14</sup>C; to develop non-radioactive tags; and, along the lines of certain European countries, to work toward a reclassification of LLRW into two categories, including higher-energy and longer-lived "intermediate wastes," which would be disposed of in a "Yucca-like" facility.

Stating his ultimate goals often draws the ire of those with whom Hirsch must ultimately compromise. "He is behind a group—he is a professional activist—that is out to stop the use of nuclear material," said Steve Romano, vice president and manager of California Operations for USE. "We have spent a lot of time in disclaiming [his] information. He has no background in this field." Dr. Pasternak said, "If we had gone on to other [disposal] techniques as in Europe, they'd be yelling and screaming about

TABLE 1. CBG's Table of Radioactive Wastes Projected to Go to Ward Valley

	Activity (curies)	
<b>I. Nuclear Reactor Wastes</b>		
Nuclear Power Plant Decontamination Wastes <sup>1</sup>	308,8752	
Nuclear Power Plant Fuel Cycle Wastes <sup>3</sup>	698,897	
Nuclear Power Plant Decommissioning Wastes	421,393	
Wastes From Reactor Design Firms	15,207	
Reactor Wastes Total	1,439,372	97.7%
<b>II. Tritium Wastes</b>		
Tritium Wastes from Moravek	3,131	0.2%
<b>III. Other Radwaste Producers (Hospitals, Universities)</b>		
Biotech firms	2,400	0.16%
Medical Treatment, Diagnosis & Research	1,200	
0.08%		
Other Industrial Users (e.g., defense contractors)	25,000	1.7%
Academic Institutions	1,600	0.1%
Governmental Entities	350	0.02%
Total (all wastes, reactor and non-reactor)	1,473,053	100%

Sources: Ward Valley Final Environmental Impact Report/Statement (FEIR/S); License Application; NRC and DOE data; and the Top 100 Generators list (1989-1991) provided to Congressman George Miller by DHS, and scaled to the 30-year life of the disposal site.

cannot be stored at Ward Valley. Ruben Junkert, director of the Ward Valley Project for DHS also points out that confusion arises because agencies don't agree on how to categorize waste stream sources. "By definition, in our classification, pharmaceutical companies are listed as medical. When the DOE does it, it lists pharmaceuticals as industrial. The opponents have jumped on that, saying ours are inaccurate and DOE's are right."

Though proponents have yet to compile a table analogous to CBG's, historic records exist for the Southwest Compact states, and the percentages by category of LLRW-producer are inconsistent with the CBG compilation (Table 2). Hirsch contends that the historical records do not reflect certain future possibilities. Most of the reactors in California's four nuclear power plants are new; only one—San Onofre 1—is old; but as the reactors age, they may be closed and undergo decommissioning and decontamination. U.S. Ecology's projections in its license application takes this possibility into account—which is where CBG got the statistic. The problem is the statistics behind decontamination and decommissioning have several interpretations.

Table 3.1.4-8 in U.S. Ecology's license application lists the nuclear power plant decontamination annual activity projections from 1991-2020, with a total of 303,875 curies—the same number that CBG lists in its table. This total activity arises from normal maintenance of the unit, from cleaning out filter materials, resins, and so on. But the CBG table also lists "fuel cycle wastes" at 698,897 curies. Jim Shaffner, assistant manager of the California Project of U.S. Ecology, notes that CBG took a generic number for these wastes per nuclear reactor then multiplied that by the number of reactors in the compact. "We think they've double-counted the decontamination wastes in the fuel cycle wastes: that's the only way I came up with those numbers" when he calculated them himself. The application's Table 3.1.4-9 lists activity projections from decommissioning and



**TABLE 2.** NRC Historical Table of LLRW in the Southwest Compact states. A. volume and activity per state; B. percentage of volume and activity by source term, per state.

A. 1992		Volume (cubic feet)			Activity (curies)		
	California			102,946			15,730
	Arizona			19,001			997
	North Dakota			99			67
	South Dakota			1,712			>1
1991							
	California			72,100			7,050
	Arizona			18,698			908
	North Dakota			11			53
	South Dakota			9,729			603
B. 1992		Academia	Gov't	Industry	Medical	Utility	
1992	CA:	Vol.	11.1%	11.0%	50.9%	5.8%	21.2%
		Act.	0.9	0.9	76.2	0.8	21.1
	AZ:	Vol.	5.0	2.0	4.0	0.1	88.8
		Act.	0.3	0.5	1.8	0.2	97.3
	ND:	Vol.	15.6	3.0	2.3	8.9	70.3
		Act.	0.4	91.7	7.1	0.2	7.6
	SD:	Vol.	<0.1	<0.1	0.3	<0.1	99.7
		Act.	<0.1	5.3	1.6	<0.1	93.1
	CA:	Vol.	15.1	8.8	41.0	7.9	27.1
		Act.	1.0	25.0	36.6	0.3	37.1
	AZ:	Vol.	4.9	0.3	2.7	<0.1	92.1
		Act.	0.1	0.2	4.7	<0.1	95.0
	ND:	Vol.	<0.1	42.9	<0.1	<0.1	57.1
		Act.	<0.1	98.2	<0.1	<0.1	1.8
	SD:	Vol.	<0.1	<0.1	0.3	<0.1	99.7
		Act.	<0.1	5.3	1.6	<0.1	93.1

decontamination wastes from five reactors, totaling 4,269 curies. These LLRW arise after the closing of the reactor, and may include reactor parts as well as decontamination wastes from cleaning the dead reactor. But the CBG table lists a drastically different number—421,393 curies. Mr. Shaffner said, "What I believe they didn't do is account for the fact you don't just decommission a plant and ball it up and send it off." Instead, he said, because most of LLR "D&D" waste is short-lived, the plant stores it on site until it has largely decayed, and this, Mr. Shaffner said, accounts for the 4,269 curies. The question remains how 421,393 is reduced by a factor of 100.

Timothy C. Johnson and G.W. Roles of the NRC wrote a report in September 1989 on "Decommission Waste Characteristics" in the Environmental Impact Statement, and summarized the activity within decommissioning wastes for two kinds of reactors and the decay rate of these wastes (Table 3). Even after storing the wastes for ten years on site, there would be 32,900 curies of radioactivity from Classes A, B, and C waste remaining from a pressurized water reactor. But Section 3.1, pages 62-64, of the license application describes each of five reactor facilities (either fuel fabrication, research or power generation) that may undergo D&D during Ward Valley's 30 years (Table 4). Each facility will have a different range of waste in volume and activity because of the variety of reactor and its decommissioning plan; but generally the wastes are vast quantities of

that." Opponents and proponents do not seem to be speaking the same language, and so not surprisingly they do not meet at the bargaining table.

Instead, they meet in the courtroom, site of many a delay. On October 15, a coalition of CBG, Southern California Federation of Scientists, and the Los Angeles Physicians for Social Responsibility filed a lawsuit against the DHS to void USE's license and the project's Environmental Impact Report (EIR) so the agency may consider other information about the project's safety and design. But, "We don't expect anything new," said Ms. Earley concerning testimony at the upcoming land transfer hearing, "as the site has been studied since 1985—probably the most studied site in the country, for any purpose." Yet opponents cite statistics, studies, and study proposals that proponents consider invalid but that key political figures adopt. One of the most crucial of these factual disputes concerns the projections on the types of nuclear wastes that will fill Ward Valley during its 30-year lifetime (see accompanying story).

In his September 16 letter to Sec. Babbitt, Gov. Wilson asked that the land-transfer hearing be limited to the migration of materials from the site onto federal lands. According to Ms. Hobson, the governor worked on "streamlining" the hearing, "so it would go as fast as possible." Even Dr. Wilshire (see accompanying story), citing 18USC205, which prohibits any federal employee to represent anyone but the government in a hearing, did not believe that his work would dampen the hearing process. As Dr. Pasternak said, "It should not take this long to develop a disposal facility for LLRW. It's not a difficult technical problem; it's been done. These delays speak of political leaders' inability to deal with controversy." As Ms. Earley said: "I hope before I retire I'll be able to ship a container to Ward Valley." If Secretary Babbitt lives up to his promise, that hope could be soon fulfilled.

*Lantz Miller*