New York Academy of Medicine Hosts Symposium

SITING STILL THE ISSUE FOR LOW-LEVEL WASTE DISPOSAL

The non-technical aspects of developing sites for the disposal of low-level radioactive waste remain a key concern as the deadline for establishing such sites nears, according to participants at a recent symposium.

To help clarify the scientific, political and sociological concerns involved in low-level waste disposal, the New York Academy of Medicine's Committee on Public Health and the New York State Department of Health sponsored a symposium in September at the Academy's Manhattan headquarters. The symposium, "Low-Level Radioactive Waste: Controversy and Resolution," included discussion of radiation biology, sources of low-level radiation waste and disposal strategies, the strengths and weaknesses of epidemiology in risk evaluation, and the public perception of risk and its implications on disposal of the waste. The speakers included representatives from government, medical centers, citizens' groups, universities and the media.*

Under the federal Low-Level Radioactive Waste Policy Act of 1980, each state must assume responsibility for disposing the radioactive waste it produces. The act was passed with the support of South Carolina, Washington and Nevada, which have been operating as the sole repositories of the nation's low-level waste. About 1.8 million cubic feet of such waste was produced in the United States in 1987. By January 1, 1990, all states or groupings of states, called compacts, must either submit a license application for a new disposal facilty or provide plans to the Nuclear Regulatory Commission (NRC) for the storage, disposal, or management of their low-level waste, effective January 1, 1993. (See *Newsline*, April 1986, pps. 447-449.)

All but ten states and Puerto Rico have joined one of the nine compacts for waste disposal, according to the NRC. In the compacts, one or two states are designated to host the site; those that decide not to join a compact will most likely dispose their wastes within their own boundaries.

A Review of Facts, Definitions

The symposium began by reviewing the scientific knowledge of low-level radioactive waste. David Maillie, PhD, associate professor of biophysics at the University of Rochester, noted that low-level radioactive waste is produced by utilities, academia, medicine, industrial processes, and the government. It can consist of spent resins, filter sludges, animal carcasses, trash, sealed sources, plant hardware, depleted uranium, and dry compressible wastes, such as clothing.

The technical definition of such waste, however, covers many pages of regulations, according to Dickson Hoyle, project manager of the nuclear fuel cycle for the Washington-based United States Council for Energy Awareness, an industry association. In general, low-level wastes "aren't high or medium, and can be disposed of at or near the surface," Mr. Hoyle said. The average radioactivity of low-level waste ranges from 0.01 curie per cubic foot for medicine and research through 0.2 curie per cubic foot for industrial processes to 0.4 curie for nuclear generating stations.

New York's Department of Energy Conservation puts this waste into three groups that parallel the NRC's A, B and C classification system. Dr. Maillie said that Group 1 wastes are those containing isotopes with short half-lives, up to 87 years, such as tritium, cobalt-60 and iron-55. Group 2 consists of those isotopes with long half-lives and mobility in the environment and water table, such as carbon-14, technetium-99 and iodine-129. Group 3 wastes are long-lived but with low environmental mobility, such as cesium-137 and nickel-39.

When these wastes are properly disposed, the risk to those living nearby is "finite, though vanishingly small," according to Merril Eisenbud, ScD, professor emeritus of environmental medicine at New York University Medical Center. For example, he cited the US Environmental Protection Agency's (EPA) standards on radon in the home. At the level of 4 picocuries per liter, the EPA recommends that a homeowner take

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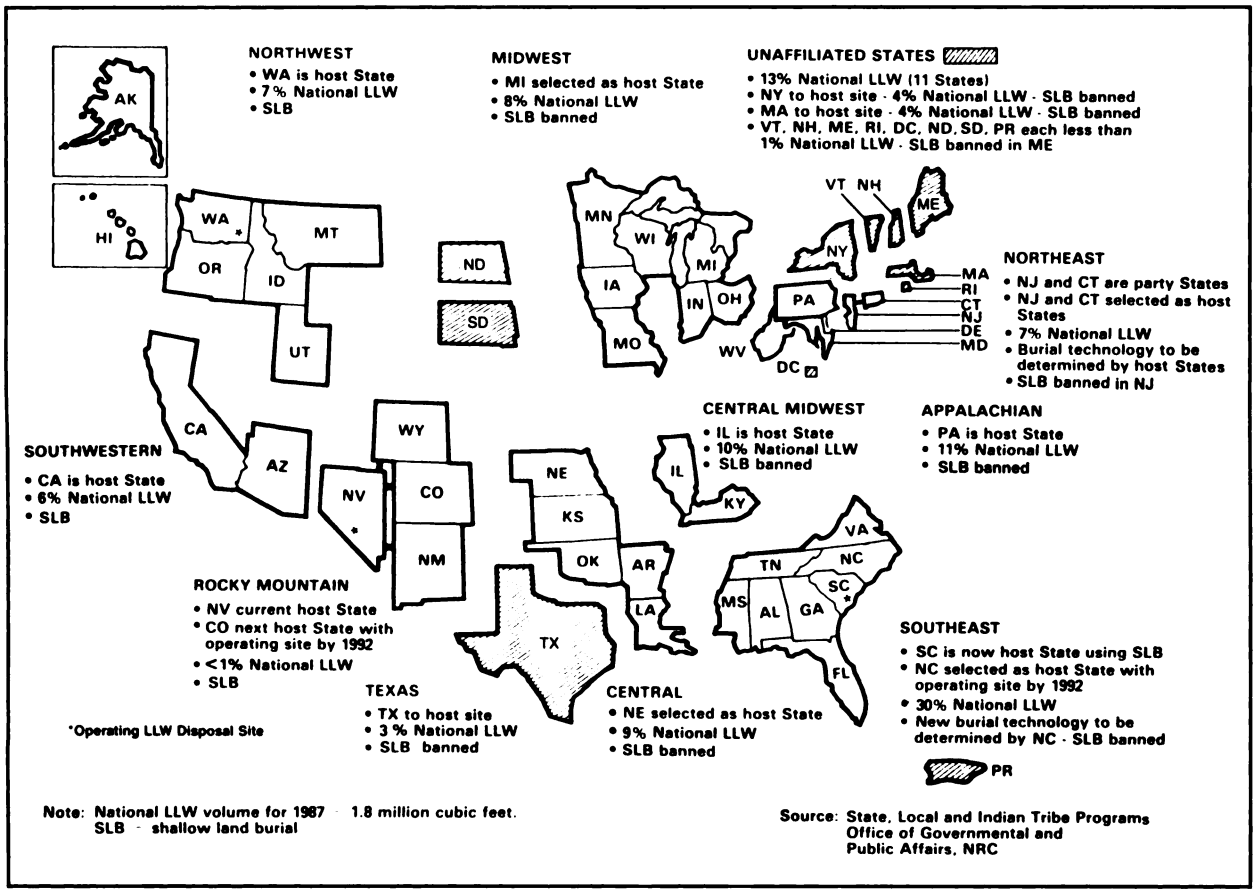
**The speakers at the symposium were: William Harris, MD; Merril Eisenbud, ScD; Stanley J. Goldsmith, MD; Eric Hall, DSc; David Maille, PhD; Vernon Houk, MD; Vincent T. Covello, PhD; Edward L. Gershey, PhD; Letty Lutzker, MD; Anita S. Curran, MD; Jay Dunkelberger, MS; Thomas Kerr; Carol Charnigo, MA; Jon M. Conrad, PhD; Diana Osborne; Carolyn Kobrynski, MEd; Steven Ross, MS; and David Becker, MD.*



Low-level radioactive waste compact status, August 1988

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action to reduce contamination, for fear that such radiation exposure could slightly increase the risk of lung cancer. This level would result in an exposure of 1,000 mrem per year, Dr. Eisenbud said. By contrast, those living near a disposal site can receive only 25 mrem of exposure per year from the site. "People get more radiation in their home than from the facility."

Perception vs. Reality

While the known risks associated with living near a well-run facility are extremely small, symposium participants agreed that the public perception of those risks is a separate issue. Several speakers acknowledged that the public's view of past failures by government and industry has helped lead to mistrust. In New York, the West Valley disposal site, about 30 miles from Buffalo, had been a reprocessing center for nuclear fuel and a disposal site for low-level wastes, until the mid 1970's. The wastes were put into shallow trenches dug in claylike soil. Over time the trenches collected rainwater in a "bathtub" effect and the water, laden with traces of radioactivity, burst through the soil at the top and flowed into nearby streams. As a result, nervous area residents lobbied against new disposal sites in their area.

Carol Osborne, a citizen active with the Coalition on West Valley Nuclear Waste, warned the symposium that the "population is generally wary" and that, as a result, technical people must make a special effort to communicate with them. "If this is not done, the NIMBY ["Not In My Backyard"] syndrome will paralyze the best thought-out propositions."

Other speakers were critical of the public's irrational fears and concerned about the cost of assuaging them. "To expend $100 million unnecessarily in our country today, with the problems we face, is very close to a catastrophe," said Vernon Houk, MD, director of the Center for Environmental Health and Injury Control at the Federal Centers for Disease Control in Atlanta. Siting and facility design decisions are often made for

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ities, and the negative effect we felt it would have on the development of multi-state regional compacts. If the reactors can dispose of low-level waste onsite, the financial underpinnings of the compact disposal sites are removed, since only other producers of low-level waste would be left to support them. Also, there is the hazard of many small low-level waste sites around the country in the hands of the power companies at a time when this is not a popular idea.

Mark Rogers, SNM's Director of Data Processing, reports jubilantly that the new computer is handling the financial and membership records very well. The computer processed the annual billing and is keeping track of the funds received perfectly, as evidenced by operation in parallel with the older computer. The next project is the complete implementation of the general ledger on the computer.

Barbara Y. Croft
President, The Society of Nuclear Medicine

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political reasons, he said, adding that "there's nothing wrong with that, but we shouldn't allow it to be surrounded by pseudoscience."

Suggestions for coping with public perceptions were offered by several participants. Vincent T. Covello, PhD, a sociologist and director of risk communication and assessment at Columbia University, said that the nuclear industry has regularly failed to communicate effectively with the public. He recommended that technical personnel accept and involve the public as a legitimate partner; be honest and open; collaborate with other credible sources, such as the League of Women Voters; meet the needs of the media; use effective comparisons; personalize the information to show how they would respond if they were living in a particular community; use concrete language and graphics; use anecdotes; and tailor the message to various segments within the community.

Anita Curran, MD, the commissioner of the Westchester County (New York) Department of Health, urged that those trying to place disposal sites make use of their local public health department. She pointed out that her office has experience and credibility in informing the public on such issues as AIDS, Lyme disease and dioxins. "Public Health makes it a policy to answer any and all questions. We work with the media. We are prevention-oriented."

The Public Response Is Key

An energy specialist from the League of Women Voters added that the experts must motivate the public to attend the local meetings on the disposal site. "Somewhere I must see and hear the notices and get the idea I should be there. Or else I will write letters to the editor," said Carolyn Kobrynski, MEd. Taking on the persona of a resident living near a proposed site, she said "Help me with the cost to hire experts—guarantee my castle. Don't saddle me with new taxes. Do some local buying. . . .Tell me. I can't forgive being kept ignorant. . . .I want your respect."

The Central Midwest compact has made some mistakes in its effort at public education, but has also been very successful, according to Thomas Kerr, manager of the Illinois Department of Nuclear Safety's Low-Level Waste Program. Realizing that it can't educate the entire state on low-level waste in just a few months, his department has concentrated on the areas most likely to host the site. Grants are available for communities to do their own studies, and hundreds of small meetings have been held in anticipation of the final site selection next November. As local politicians tend to take a short-term view of things, Mr. Kerr said he has worked to find an immediate benefit for the community that politicians can point to. He also has found cities to be most receptive because of the economic development potential of hosting the disposal site.

While the technical theory of low-level radioactive waste disposal may be well-developed, symposium participants agreed that they had their work cut out for them in educating the public. Eric Hall, DSc, professor of radiation and oncology and director of the Radiological Research Laboratory at Columbia University says, "99.99 percent of the time, we're the public like everybody else. The public doesn't make sensible, reasonable decisions about anything else. Why should we expect it in this area?" In the political process of winning allies, local control—perceived or real—is the key to success, according to Ms. Kobrynski from the League of Women Voters. "The views of the citizen are not of great value to the experts, but citizen views will make or break you."

Karla Harby