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COMMERCIAL LOW-LEVEL RADIOACTIVE WASTE DISPOSAL IN THE US?

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Abstract

Why are 11 states attempting to develop new low-level radioactive waste disposal facilities? Why is only one disposal facility accepting waste nationally? What is the future of waste disposal? These questions are representative of those being asked throughout the country. **This paper attempts to answer these questions in terms of where we are, how we got there, and where we might be going.**

Introduction

Until July 1, of this year, thousands of generators in 31 states plus Washington, DC and Puerto Rico had to store their low-level radioactive waste (LLW) onsite because they could not dispose of it in disposal facilities specifically designed and licensed for that purpose. On July 1, South Carolina withdrew from the Southeast Compact. In doing so, they opened the disposal facility at Barnwell to receive waste from throughout the country. This action will provide a relief valve for the growing stockpiles of waste being stored onsite. It will not, however, relieve states of their responsibility to come up with their own disposal capability.

It will soon become evident which states continue to share the vision Congress had when it passed legislation at their urging in 1980 and again in 1985 making them each responsible for providing disposal for all low-level radioactive waste generated within their borders. This paper describes what the commercial low-level radioactive waste disposal system looks like today, what its history is, and what its future might hold.

Where are we?

Currently, the nation has two disposal facilities. The Barnwell, SC, facility mentioned before, can accept waste from anywhere in the nation. The Richland, WA, facility, however, serves only the 11 states in the Northwest and Rocky Mountain Compact regions.

At present, there are 11 additional states claiming they will develop new disposal facilities sometime in the future. The recent opening of the South Carolina facility to receive waste nationally will force state legislators into deciding just how committed they are to see this responsibility through. In a time of ever increasing demands by the federal government and various state constituencies, it becomes easy to claim that other needs are more pressing, and, therefore, funding for low-level waste activities should be severely scaled back if not eliminated. The problem is that the use of radioactive materials is pervasive in our society and each state's responsibility to dispose of it will not disappear by ignoring it; pretending there is no continuing need will only exacerbate the problem.

Let's take a minute to look at the progress these 11 additional states have made since

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1980. As might be expected, they vary widely in how far through the process they have been able to progress. Generally, however, they fall within five groups or stages of facility development: 1. post-licensing, 2. license application review, 3. selecting a site, 4. evaluating waste management options, 5. not actively pursuing options.

Group 1 - Post-licensing. California is the sole member of this group. It is the host state for the Southwestern Compact region and has issued a license for its facility. Other states in the compact are California, Arizona, North Dakota, and South Dakota. California's main obstacle continues to be getting the Department of the Interior to transfer the land for which the license has been issued. On May 11, the National Academy of Sciences (NAS) released a report outlining its findings on seven issues that Secretary Babbitt asked it to investigate. The report found the seven issues had no substance and suggested a few things that could be done during facility construction and operation that might help further ensure the safety of the site. Currently, Secretary Babbitt is working with California to determine how these suggestions will be implemented as part of the land transfer process. It is expected that once the land is transferred, even more legal challenges will delay the opening of the site for at least three to four years.

Group 2 - License Application Review. Members of this group are Nebraska, North Carolina, and Texas. They are host states for the Central, Southeast, and the pending Texas Compact regions, respectively. As expected, these license applications have hit some snags. In Nebraska the main issue is a Corps of Engineers finding that the site included a wetlands area. In North Carolina the problem is how to demonstrate that the complexity of the site is properly modeled. In Texas charges of environmental racism have been leveled because the proposed area is poor and primarily Hispanic-American. Assuming no delays, these states could open a site within the next few years.

Group 3 - Selecting a site. Members of this group are using either a voluntary or "top-down" approach, or some combination of the two. This group includes Pennsylvania, Connecticut, New Jersey, Illinois, and Massachusetts.

Pennsylvania is the host state for the four state Appalachian Compact region. Other members are West Virginia, Maryland, and Delaware. Pennsylvania is using a "top-down" site selection approach and is currently applying preference criteria to the 25 per cent of the state that survived three initial "exclusionary" screenings. Once the preference criteria are applied, three sites will be selected for further characterization. A license application is expected to be filed in 1997 for the site found most suitable. A facility could begin receiving waste in the year 2000.

Connecticut and New Jersey are the only members of the Northeast Compact region and each is expecting to develop a disposal site. After having the state legislature through out its "top-down" screening process, Connecticut joined New Jersey in attempting to implement a volunteer site selection process. Currently three communities are interested in Connecticut, two of which are near nuclear power plants. In New Jersey, however, no community has express any interest.

Illinois is the host for the two state Central Midwest Compact region. Kentucky is the other member. In 1992, a specially appointed siting commission discarded the proposed site in Illinois. Siting activities are due to begin again once site selection criteria are determined and approved by the State Geological Survey. Under the new siting process, 10 locations will be evaluated once the screening process is complete.

Massachusetts is the final member in this group. In February 1994, the state began a dual site selection process that involves both top-down screening and an active volunteer program. A contractor was selected in April 1995 to screen the state for unsuitable areas. Once this stage is complete, two additional stages will home in on areas that are physically superior. Volunteer sites will be solicited during this three stage process. In addition to trying to site a facility, Massachusetts is continuing efforts to negotiate compacting and disposal access agreements with other states and compacts.

Group 4 - Evaluating Waste Management Options. This group is comprised of Ohio, Michigan, and New York; each an unaffiliated state.

Ohio is the host state for the Midwest Compact region. Other member states are Missouri, Iowa, Minnesota, Wisconsin, and Indiana. Originally, Michigan was the host state for this compact region but its membership was revoked when the governor repeatedly expressed opposition to siting a disposal facility in the state and the legislature adopted severely restrictive siting criteria. Ohio, which had earlier been named the first alternate, became the host state when Michigan was expelled. Enabling legislation was passed last month that will establish a siting program, specify siting criteria, authorize Ohio to become an NRC agreement state, establish a nine-member Waste Authority, and prescribe a site screening process. The state is hoping to have an operational facility in about 8 years.

After its "top-down" screening process had identified five potential sites in 1989, the governor of New York suspended all on-site inspections in 1990 due to local opposition and concerns for the safety of state personnel performing onsite inspections. Subsequently, the state law was amended to require that a disposal method be selected before any on-site activities are resumed. Earlier this year, the state siting commission selected covered, above-grade vaults as the preferred disposal method and named drift mines as an alternate. Once a generic environmental impact statement is drafted, these recommendations will be submitted to the state regulatory body for approval.

Group 5 - Not Actively Pursuing Waste Management Options. This group includes only New Hampshire, Rhode Island, Puerto Rico, and Washington, DC. These states plan to simply store their waste once access to South Carolina is no longer available. Like Massachusetts, these states are continuing efforts to negotiate compacting and disposal agreements with other states and compacts.

In summary, currently two disposal sites are operational, one will accept only waste from the Northwest and Rocky Mountain Compact regions, and the other will accept waste from anywhere. More facilities are being planned in 11 additional states: California, Nebraska, Texas, Illinois, North Carolina, New Jersey, Connecticut, Pennsylvania, Ohio, New York, and

Massachusetts. California is the only state that has issued a license for its facility but continues to wait for the Department of Interior to transfer the land. Nebraska, Texas, and North Carolina are currently reviewing license applications. The seven remaining potential host states are at various stages in the site selection process. Four states, New Hampshire, Rhode Island, Puerto Rico, and Washington, DC, are not actively pursuing any disposal option.

How did we get here?

In the 1960's and 1970's, the private sector developed somewhat of a regional system for disposing of the nation's commercial low-level radioactive waste. During that time, six disposal facilities, all using shallow land burial, opened and operated at Maxey Flats, Kentucky; Sheffield, Illinois; West Valley, New York; Beatty, Nevada; Richland, Washington; and Barnwell, South Carolina.

In the 1970's, three of these facilities closed for various reasons (West Valley--1975, Maxey Flats--1977, and Sheffield--1978). Two others (Richland and Beatty) experienced temporary closures due to operating, transportation, and packaging violations. At about the same time, South Carolina's Governor Riley announced that the Barnwell facility would cut its acceptance rate in half.

Due to the waste problems and the political situation at the three open sites, the three governors of South Carolina, Nevada, and Washington pressured the Federal government to establish a more equitable system for commercial waste disposal. In response to a proposal by the National Governors Association (NGA), which was also endorsed by other state groups, Congress passed the Low-Level Radioactive Waste Policy Act of 1980 (Public Law 96-578).

The 1980 Act set the policy that states are responsible for providing disposal for all commercial low-level radioactive waste generated within their borders. Congress explicitly recognized in the Act, however, that it would be more efficient for states to band together into "compact regions" to manage their waste. To encourage the formation of compact regions, Congress provided that the compacts they approve would be able to reject waste from outside of their compact regions. Congress also established a deadline of January 1, 1986, by which new disposal facilities were to have opened. In hindsight, this was a very ambitious goal.

As the 1986 deadline drew closer, it became obvious that no state would be able to meet it. As a result, the NGA again began to discuss the issue and came up with a compromise. The NGA and other state groups such as the National Council of State Legislatures concluded that penalties and incentives were needed to maintain a schedule that would lead to the establishment of new facilities. In exchange for these provisions, the three sited states (South Carolina, Nevada, and Washington) agreed to extend access to their disposal facilities for another seven years - through the end of 1992. This state-sponsored solution was passed by Congress as the Low-Level Radioactive Waste Policy Amendments Act of 1985 (Public Law 99-240).

At the same time that the 1985 Act was passed, Congress consented to seven compacts submitted by the states. These compacts were the Northwest, Southeast,

Rocky Mountain, Central Midwest, Midwest, Central, and Northeast. In subsequent years, the Appalachian and Southwestern compacts were also approved. The Texas compact has been submitted to Congress and is expected to gain consent in 1995.

Where are we going?

As indicated previously, the next few years will be a watershed for determining which states have a serious commitment to fulfilling their responsibility, under law, to provide for the disposal of all their low-level radioactive waste.

South Carolina's opening of its facility nationally also demonstrates the tremendous money making potential these sites have. This might cause a couple of things to happen. First, potential host communities might be willing to overcome the stigma of actively soliciting such a facility. Although this happened at Martinsville, Illinois, and West Valley, New York, their state governments intervened and effectively eliminated those locations from consideration. Second, and more importantly, state governments might see South Carolina's precedent as an opportunity to fund some politically powerful projects that went lacking in previous years. As demonstrated by California and Texas, when a governor and his administration are behind such a project, things progress; without solid leadership from the top, programs languish due to the imposition of "extra-regulatory" hurdles.

Conclusion

1. The pending crisis caused by forced onsite storage of low-level radioactive, has been temporarily averted with the opening of the Barnwell, South Carolina, facility to waste from throughout the country.

2. The next few years will likely test state resolve to open new disposal facilities because of pressures to reduce or eliminate funding for siting activities.

3. It is possible that Texas and California could open sites within the next few years.

4. South Carolina will likely form a compact in the near future. The major bone of contention in forming the compact will be designating which state will follow South Carolina as the host state.

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