

A REGIONAL LOW-LEVEL WASTE MANAGEMENT SYSTEM:
THE SITING PROCESS

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ABSTRACT

The Rocky Mountain Low-Level Radioactive Waste Compact has been developed for the purpose of managing low-level radioactive waste generated in the region, comprised of the States of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming. The Compact calls for the region's largest generating states to host the Compact's low-level waste management facilities. In recognition of its responsibility to host such a facility, the State of Colorado has instituted a siting process for the purpose of establishing a low-level waste disposal facility to serve the region. The efficacy of this siting system is now being tested by the siting and facility development activities of a low-level waste disposal company.

BACKGROUND

The temporary closure of two of the country's three commercial low-level radioactive waste (LLW) disposal sites in 1979 amplified the need to address the severe institutional problems that had arisen in the states hosting those facilities. These problems related to regional equity, regulatory enforcement and public perception. The consensus among national and state leaders involved in the issue was that to address the institutional problems, nothing less than a binding contract among party states, i.e. an interstate compact, was necessary.

Were it only to ensure that certain technical standards were met, such as providing for safe packaging and transportation, regional compacts could have been negotiated and ratified in short order. However, to address the institutional issues of regional equity and public perception, it was necessary to develop within the compact a system that would provide a LLW disposal site in each compact region. As a result, the role of the siting process in compact development has been crucial and has been the principal stumbling block in achieving regional agreement.

ROCKY MOUNTAIN LOW-LEVEL WASTE COMPACT

One region, comprising the States of Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming has sought to resolve its LLW institutional problems by development of the Rocky Mountain Low-Level Radioactive Waste Compact. This agreement, which has been signed into law in Colorado and Wyoming and is now being considered for legislative approval in the States of Arizona, Nevada, and New Mexico^c addresses host state responsibility by taking into account the dual nature of the Rocky Mountain region. Currently, the region is dominated by one principal LLW generator, Colorado, which produces about 80 percent of the region's waste. With the start-up of the Palo Verde nuclear power plant, Colorado will soon be joined by Arizona as a major regional generator. With one and soon two states dwarfing the LLW generation of the other regional

members, it was decided that only those states generating large amounts of the region's waste, which hence have a greater interest in the availability of a disposal facility, be responsible for providing that facility.

For that reason, the Compact specified that only those states generating more than 20 percent of the region's waste are responsible for hosting a regional LLW facility. Two items in this statement should be clarified. First, a regional LLW facility is of course a facility that will serve all the Rocky Mountain Compact members. It may serve the region not only by disposing, but also collecting, consolidating, storing, treating or incinerating the low-level waste generated therein. Thus, while it is doubtful that two disposal facilities would be needed or would indeed be economically feasible in the Rocky Mountain region, both Arizona and Colorado could fulfill their host state roles concurrently by locating a disposal facility in one state and another type of management facility in the other state, contingent upon approval by the Rocky Mountain Compact Board. Of course depending upon the demand for non-disposal regional facilities, the Board could decide that disposal was the only service necessary for the Rocky Mountain region, in which case it would have to determine an equitable and viable system for all eligible host states to fulfill their responsibilities. In any case, disposal remains the primary issue from the perspective of the Compact and regional cooperation.

The second point which must be made is the fact that the Compact's 20-percent regional generation rate is left deliberately flexible as to the units it is measuring. Traditionally, it may have been automatically assumed that the 20 percent related to the volume of waste generated. However, as volume reduction techniques are improved and more widely incorporated, coupled with the new waste classification system incorporated in 10 CFR 61, NRC's low-level waste disposal regulations, radioactivity and not volume may become a more accurate measure of a state's relative generation rate. Thus, while a state may compact or incinerate its waste to the degree that it would fall below a

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^c Utah has opted to join the Northwest Interstate Low-Level Waste Compact, although it wishes to retain the option of joining the Rocky Mountain Compact, perhaps at some future date.

percent regional volume generation rate, on the basis of radioactivity it may generate far more than 20 percent of the region's waste. The Compact charges the Rocky Mountain Compact Board with deciding on which terms the 20-percent measurement will be based.

The other major items in the Rocky Mountain Compact include its prohibition against low-level waste shipped into or out of the region. The prohibition against shipping LLW into the region is of course the primary motivation behind establishment of the Compact, in order to constitutionally enable the region to limit disposal to that waste generated in its member states and guard against a site becoming a "dumping ground for the nation." Likewise, the prohibition against shipping low-level waste generated in the region to a site outside of the region is designed to prevent a facility from losing so many customers that it loses its economic viability. Although out-of-region disposal will not be possible if every disposal site is secured by a compact, the Rocky Mountain Compact retains this clause in the event that a non-regional site would be available and capable of undercutting the prices charged at the regional facility.

Finally, the Rocky Mountain Compact has been successful in establishing an interstate cooperative agreement, while retaining individual state authorities. It does so by limiting the Board's power to approve or disapprove regional LLW facilities based only on consideration of their economic feasibility and regional capacity requirements. All siting, operating and post-operational regulatory authority remains in the hands of the host state.

In view of Colorado's host state responsibilities incurred through the Rocky Mountain Compact, the State recognized the need to establish statutory authority to carry out those responsibilities. As a result, Colorado included implementing legislation with the Rocky Mountain Compact that established a siting process for a Colorado-based LLW disposal facility. What resulted was the Colorado Low-Level Radioactive Waste Act, adopted by the State in 1982.

COLORADO'S LLW SITING PROCEDURES

Under the Colorado Low-Level Radioactive Waste Act, the counties are given the initial opportunity to volunteer sites within their borders for a LLW site. If no site has been recommended by a board of county commissioners by January 1, 1984, the Colorado Department of Health must conduct a statewide assessment and evaluation of potential areas deemed suitable for a LLW facility. The statewide assessment must include in its consideration the following factors:

1. Physical and chemical characteristics of strata.
2. Surface and subsurface hydrology.
3. Topography and drainage.
4. Meteorology and climatology.
5. Demography, including population density near the site.

6. Access routes and affected public roads.
7. Ecological impact.
8. Relationship to local land use plans.
9. Ownership of real property.

The Department of Health is forbidden by law from approving any proposed LLW disposal facility that is neither located on a site identified as acceptable in the statewide assessment nor recommended by a board of county commissioners unless it can be convinced that the proposed site is at least as technically suitable as either the state- or county-designated areas.

In the event there is no low-level waste disposal facility proposed or approved by January 1, 1985, the Department of Health must develop an alternative plan for facility development and submit it to the Legislature by January 1, 1986 for review and approval. This provision was included to cover the eventuality of no company being interested in establishing a disposal facility for the Rocky Mountain region. In that case, an alternative plan would have to be drawn up, providing for a state-owned and -operated facility. At this point, the State is not interested in such an arrangement, but feels it was necessary to provide for such a situation. Based on current activities, development of such an alternative plan will not be necessary.

PROPOSED COLORADO LLW SITE

To the amazement of many interested observers, a county in Colorado has responded positively to the siting of a LLW disposal facility within its borders. While the board of county commissioners of Colorado's Montrose County did not recommend a specific site for a LLW facility, it has reacted favorably to the Chem-Nuclear Systems, Inc. proposal to site such a facility near Naturita, Colorado, in the western end of Montrose County.

Chem-Nuclear Systems, Inc. was invited into Montrose County by the West End Business Development Committee, which was seeking to attract industry into the economically-depressed region. The western end of Montrose County lies in the uranium belt, supported by a traditional industry of uranium mining and milling. With a population experienced in hosting a radiation-associated industry, coupled with the current economic downturn in that industry and the consequent unemployment, the region is particularly suited, from a public perception standpoint, for hosting a LLW facility.

This is not to ignore the opposition to the proposed facility, which has been voiced by many concerned citizens in and around the vicinity. However, the degree of public acceptance in the area has been much greater than would normally be expected.

The importance of public perception is difficult to underestimate. At a time when Colorado, as well as many other states, is grappling with public opposition to the siting of non-radioactive hazardous waste disposal facilities, opposition to the proposed LLW facility has been limited. Hazardous waste facility siting has become so difficult, with local communities

promulgating flagrantly obstructionist rules and regulations, that states, including Colorado, have enacted or are considering enacting preemptory legislation. This contrasts with the cooperative relationship that has been established between Montrose County and the State of Colorado relative to the proposed LLW facility.

Colorado's experience with the LLW siting process has to this point been somewhat limited and generally positive. As noted, the State is statutorily forbidden from conducting any LLW site identification work until 1984 at the earliest, and then only if no county has under its own initiative recommended or accepted a site. Since Montrose County has been generally receptive to the proposed LLW facility, there may be no need for the State to conduct a site survey, assuming the Naturita site proves to be technically acceptable and the County grants its formal approval for the facility, in the form of a certificate of designation.

Colorado is handling the Chem-Nuclear proposal under its Joint Review Process (JRP), a system to coordinate local, state and federal permitting authorities while providing expanded opportunities for concerned citizens to voice their views and concerns of the project. Through the use of this process, duplicatory regulatory requirements will be avoided and a time schedule established and followed by participating agencies in order to minimize regulatory delays. Extensive public hearings will also be sponsored, based on the theory that legitimate concerns should be heard early and acted on before a project is too far along to change.

The major permits to be coordinated by the JRP will be the radioactive materials license^a, air emissions and subsurface disposal permits and the county's special use permit and certificate of designation. As well, the JRP is designed to incorporate the findings of the Environmental Impact Statement (EIS), which is expected to be required because of the need to purchase federal land for the site^b.

For the JRP to function, all pertinent state, local and federal agencies must agree to abide by the process. Agreement to participate in the JRP is voluntary and as of yet has not been made by the county or BLM. This current lack of agreement is not due to any lack of cooperation, but rather a delay in the entire system caused by Chem-Nuclear's study of the entire Western Slope of Colorado for alternative LLW sites.

Since federal land is involved in the proposed Naturita LLW site, the National Environmental Policy Act requires an assessment of alternatives. Chem-

Nuclear hopes to satisfy these requirements through its assessment of alternative sites on the Western Slope, which is that part of Colorado, encompassing almost 40,000 square miles, which lies on the western side of the Rocky Mountains. If the BLM accepts the Western Slope study as an adequately-comprehensive site analysis, it could then proceed with the land sale process, including agreement to participate in the JRP and initiation of the EIS process.

There are several significant factors which could jeopardize the development of the Naturita site for a LLW disposal facility. The first is a question of the BLM's acceptance of the Western Slope study. It is possible that the BLM could require the assessment of a larger region than the Western Slope, necessitating another, more comprehensive study. A second factor is the possibility that as a result of the Western Slope study, Chem-Nuclear will have identified a more suitable location for LLW disposal and vacate the Naturita site. A third factor concerns the technical acceptability of the Naturita site.

No matter how receptive a community is to a proposed LLW facility, development and operation cannot proceed unless it meets all technical criteria. It is possible that a facility could be engineered to protect against certain potential problems. However, development of such a facility could cause serious technical and institutional difficulties. Technical difficulties would of course arise in attempting to engineer against natural forces for an extended period of time, until the low-level waste had decayed to acceptable levels. Related to this would be the institutional problems in convincing a concerned public that such an engineered facility would indeed protect its health and safety and was preferable to relocating the facility to a site with no such geotechnical problems.

CONCLUSION

LLW siting activities in the State of Colorado have, over the past year, achieved some special goals as well as encountered some difficult obstacles. On the positive side, Chem-Nuclear's wish to develop a LLW facility in the State of Colorado is evidence of industry's recognition of the regional compact system and its intent to operate within it. The identification of a receptive locality, although one experiencing a special set of circumstances which may be difficult to duplicate in other regions of the country, has greatly eased the burden on the State that accompanies development of such a facility.

On the down side, the need to satisfy the BLM's need for a broader site assessment has altered the proposed facility's development schedule but should not prove to be a serious blow. And, of course, any geotechnical concerns must be fully resolved before a facility at the currently-proposed site may be licensed.

^a Since Colorado is an Agreement State, it will be responsible for licensing and regulating the LLW facility.

^b The National Environmental Policy Act requires the development of an EIS whenever any action is determined to be a major federal action, as no doubt the sale of federal land for low-level waste disposal will be.

From these experiences, Colorado has been able to conclude that the Rocky Mountain Compact offers a viable system for managing low-level waste, including the crucial requirement for siting and developing a low-level waste disposal facility. Chem-Nuclear's activities have shown the wisdom of locating a LLW facility near a community that accepts it. However, no matter how well the institutional aspects of siting are handled, it remains imperative for the siting process to accept the technical limitations placed upon it by ensuring that only a geotechnically-acceptable site is developed.