

THE TEXAS SITUATION

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ABSTRACT

The Texas Low-Level Radioactive Waste Disposal Authority was formed in 1981 to address the Texas low-level radioactive waste (LLW) problem consistent with the direction of P.L. 96-573. The Authority has completed technical tasks, including source term evaluations, preliminary conceptual designs, economic assessments, and long-range planning, and has work in progress on site selection, facility design, operating procedures, and licensing. Site selection has been the major technical activity and will be completed in 1987 after on-site evaluations of potential sites. The Authority expects to have its site licensed and operational in 1992.

Texas has been the national leader in site selection. Political concerns and the uncertainty of the national agenda led Texas policy makers in early 1985 to slow down the state's progress. Texas' experience in site selection should be instructive to other states and compacts and may well be a prediction of events for these other groups. This paper discusses the background and status of Texas' development activities, future plans, and possible impacts of the Low-Level Radioactive Waste Policy Amendments Act of 1985.

BACKGROUND AND CURRENT STATUS

The Texas Low-Level Radioactive Waste Disposal Authority was created in 1981 to provide disposal capability for LLW generated within the state. The Authority's enabling legislation is consistent with the direction of P.L. 96-573, the Low-Level Radioactive Waste Policy Act of 1980. The Authority is mandated to perform certain technical studies as well as determine those areas of the state that are relatively more suitable for LLW disposal.

Numerous technical studies have been completed, including source term evaluations, waste management practices, conceptual designs, transportation costs and economics, public perceptions, monitoring needs, and sociodemographic and intergovernmental concerns. On-going studies include alternative technologies and operating procedures, as well as site selection. Currently, the Authority is focusing on site selection on state-owned lands in West Texas. Long-range plans have been developed to address site characterization, facility design, operating procedures, licensing, construction, and operation.

Federal and state laws and regulations provide specific requirements for site selection. These requirements are based on ensuring that a facility meets environmental and health protection standards. The Authority developed its site selection criteria from these requirements and, in several cases, exceeded requirements by including certain preferential criteria. To ensure that all criteria were met, the Authority established a policy that the siting activity would be conducted solely on a technical basis.

In February 1983, the Authority selected Dames & Moore to conduct a siting study for the location of a LLW disposal facility in Texas. Dames & Moore was charged with the responsibility of conducting a comprehensive evaluation of all possible sites in the state using 14 general criteria:

- (1) disposal volume capacity for 20 years;
- (2) geologic considerations;
- (3) topographical characteristics;
- (4) meteorological conditions;

- (5) surface and subsurface hydrology;
- (6) flora and fauna;
- (7) current land use;
- (8) transportation and access;
- (9) population density;
- (10) proximity to generated waste;
- (11) federal and state regulations;
- (12) socioeconomic effects;
- (13) alternative activities; and
- (14) long-term impacts such as decommissioning and reclamation.

William F. Guyton Associates, Incorporated, a hydrology consulting firm, and Hittman Nuclear Corporation, a radioactive waste transportation company, were selected by Dames & Moore as subcontractors to provide additional hydrological and transportation expertise.

With direction from the Authority staff, Dames & Moore expanded the 14 general criteria to 24 criteria addressing both exclusionary and inclusionary factors. All 254 counties of the state were evaluated. Unsuitable counties were eliminated through a progressive, three-phase screening approach. Ultimately, 56 sites in six regions of the state were selected for detailed comparison and rating, with 26 being recommended for further consideration. Six of the recommended sites were identified as potentially available, and preliminary on-site evaluations were conducted. These sites were located in McMullen, Dimmit, Hudspeth (two sites), La Salle, and Garza counties.

After preliminary drilling, the Garza County site was deemed unsuitable because of a shallow strata of fine sand which represented a potential for shallow groundwater. The La Salle County site was removed from consideration because it became unavailable for purchase by the Authority. The two Hudspeth County sites, located on University of Texas System land, were removed when conflicts with the University System precluded further consideration of these two sites. Therefore, with the exception of the Garza County site, five of the six sites were considered to be suitable, but because of unavailability, only the sites in Dimmit and McMullen counties remained under practical consideration.

At its November 19, 1984 meeting, the Board named these sites for further consideration and directed the staff to conduct evaluations and prepare reports that would enable the Board to select one as the prime site.

Public concerns became a factor before the technical evaluations could be completed. These concerns, coupled with uncertainty at the federal level regarding the 1986 cut-off date in P.L. 96-573, led the Governor and key legislators to request a delay in the Authority's siting activities. Based on consultation with the Governor and the Texas Legislature, the Board decided to table consideration of a prime site and conduct a detailed inventory and evaluation of all state-owned lands in areas of the state previously identified as suitable by Dames & Moore. After a thorough review of proposals, Dames & Moore was selected to continue this work. The evaluation of state-owned lands commenced on April 8, 1985, with completion required by August 31, 1985.

In addition to action by the Authority's Board to redirect siting activities, legislation reflecting both public and political concerns was passed in the 69th Texas Legislature to change siting criteria. The legislation, H.B. 449, became effective June 14, 1985.

H.B. 449 directs the Authority, in its search for LLW disposal sites, to give preference to lands owned by the state and administered by the University of Texas (UT) System or the General Land Office (GLO). The bill authorizes the Authority to enter into an agreement with University or GLO officials to purchase an appropriate tract in fee simple, but gives those officials veto power over any site they consider inappropriate. If an acceptable site is located on University lands, the University's Board of Regents must certify in its records that the site will not interfere with potential siting on University lands of the Super-Conducting Super-Colliding Particle Accelerator Project sponsored by the U.S. Department of Energy.

The legislation stipulates that no siting or performance standards for the selected disposal site can be relaxed because a site is located on state-owned lands. In addition, no site can be selected that is within 20 miles up-drainage from a reservoir project that has been constructed by the U.S. Bureau of Reclamation or the U.S. Corps of Engineers, or that has been approved for construction as part of the Texas Water Plan. If the Authority determines that a suitable site cannot be located on state-owned lands, it must prepare a report to the Governor and the Texas Legislature citing the reasons that the lands are unsuitable.

The Authority must, as part of its redirected siting program, examine alternative waste management techniques, including waste processing, reduction, and recycling. The design of disposal facilities must incorporate safeguards against hazards resulting from local meteorological conditions such as storms, hurricanes, tornadoes, and flooding. No LLW may be disposed of in a landfill below the natural level of the site unless (a) state or federal programs preclude or recommend against aboveground disposal, or (b) if the Authority determines by rule that below ground disposal provides better environmental protection than aboveground disposal.

A final section of the bill states that the Texas Department of Health may not issue a license for a

disposal site to the Authority prior to July 6, 1987. This provision enables the 70th Legislature, meeting in 1987, to examine the Authority's progress and progress at the federal level prior to license issuance.

As a result of action by the Authority's Board of Directors and H.B. 449, all previously identified sites have been eliminated except the La Salle County site, which is not available for purchase. Of the 56 top ranked sites, only 14 remain as potential sites, and none are available. Unless private landowners volunteer to sell their property, the only properties available to the Authority are those owned and administered by the GLO and the UT System.

Working with GLO and University representatives, the Authority staff identified 2,900,377 acres of state-owned land in 172 of Texas' 254 counties. Dames & Moore combined this data with previously developed exclusionary maps to document those lands of suitable size (320 acres or larger) that are located in potentially suitable siting areas.

Progressive application of siting criteria narrowed the study to 18 sites located in six West Texas counties--Brewster, Culberson, Hudspeth, Loving, Ward, and Presidio. Aerial and ground reconnaissance by staff of the Authority and the contractor defined seven sites in four counties for on-site work. After core drilling, four sites, two each in Culberson and Hudspeth counties, remained for study. The Authority's Board selected three sites, two in Culberson County and one in Hudspeth County, for detailed study. That effort is now underway.

FUTURE PLANS

Critical Path Network

The Authority's critical path network reflects the legislative mandate to give preference to state-owned land and consider alternative disposal methods. In fiscal year 1986, beginning in September 1985, more detailed investigations of selected sites on state-owned lands are being conducted by the Bureau of Economic Geology of the University of Texas at Austin. At the August 20, 1985 meeting of the Authority's Board of Directors, three disposal technologies were designated for further study, including aboveground, below ground, and earth mounded concepts. Rogers & Associates Engineering Corporation was selected as the contractor with assistance from Sargent & Lundy and Earth Technology Corporation. Site-specific studies are scheduled for completion by August 31, 1986, and the alternative technology study will be completed by August 31, 1987.

Work will also begin in fiscal year 1987 on standard operating procedures and detailed designs for the three disposal technologies. Site selection activities will proceed through (1) socioeconomic and additional technical studies, (2) selection of two or more potential sites, and (3) site designation. A request for proposals for site characterization work will be issued following completion of socioeconomic studies.

Fiscal year 1988 will be devoted to tailoring generic standard operating procedures to site-specific procedures and to selecting a final disposal technology design complementary with characteristics of the designated prime site. Site characterization will also begin in fiscal year 1988.

By the beginning of fiscal year 1989, the standard operating procedures and final site design will be completed, enabling a phased license application process to begin. To facilitate regulatory agency review, the license will be submitted in segments as data become available. The license application will be updated periodically as data are obtained from on-site characterization work until the license is complete.

Fiscal years 1990 and 1991 will be dedicated to license review and hearings, and license issuance. Construction could begin late in fiscal year 1991, accommodating the projected 1992 operational date.

The current critical path network represents a significant departure from the Authority's previous schedule. Many factors, technical and political, have contributed to changes in the time table.

Siting Incentives

In order to gain some measure of local acceptance of a LLW disposal facility, the Authority is studying ways to provide incentives to counties and local governments in potential siting areas. Under its enabling statute, the Authority may provide financial assistance to local governments impacted by the disposal site activities. This assistance could be in the form of direct payments derived from disposal fees. Other forms of grants or aid could be made available. The Authority is exploring all possible sources of funding and is developing rules and procedures to implement an impact assistance program.

Another incentive is the idea of a rangeland improvement and wildlife management effort. Much of the state-owned land in West Texas under consideration by the Authority for siting is devoted to rangeland activities. A large portion of this land could be more productive than it is currently. It continues on a downward trend that began when fencing was introduced, putting an end to free ranging. If the productivity of the land could be improved, the result would eventually be increased revenues to the state through leasing the land for hunting and cattle grazing.

The Authority proposes to develop, in conjunction with the General Land Office, a rangeland improvement and wildlife management effort that would benefit both the economy of the local governments in the vicinity of the disposal site and the State of Texas through increase revenues to its public education fund. This proposal may require additional legislative authorizations. Initial public reaction to the plan has been very favorable.

IMPACT OF AMENDMENTS TO LOW-LEVEL RADIOACTIVE WASTE POLICY ACT

On December 19, 1985, Congress passed the long-awaited Low-Level Radioactive Waste Policy Amendments Act of 1985, P.L. 99-240. Although it is still too early to fully assess the impact of the Act on the Texas program, the Authority's current schedule for development of a LLW disposal site is readily attainable under the Act. For example, Texas has already met the July 1, 1986 milestone for expression of intent to enact siting legislation. The January 1, 1988 milestone for selecting a site, site developer, and siting plan will be accomplished by September

1987. Extensive study of the three West Texas potential sites is now underway. The Authority projects that a complete application will be filed by late 1989, thus meeting the January 1, 1990 milestone for application filing. An additional 21 to 24 months will be needed for the necessary public hearings, license issuance, and construction. Thus, Texas should have a state-owned LLW disposal facility on line by the end of 1992, in full accord with the Act.

The provisions of the Act dealing with allocations of disposal capacity for commercial nuclear power reactors are not of immediate concern to Texas since no reactors are yet operational. The earliest a reactor will be on line is 1987. Any commercial reactor is allowed to assign part of its allocation to other reactors or generators located in the same state or compact.

The 25 percent rebate of surcharges that will be available to states and compacts if the seven-year transition periods are met may, according to the Act, be applied to the development of LLW disposal facilities, mitigation of disposal facility impacts, regulation of disposal facilities, or the decommissioning and closure of the facilities. At this point, the Authority is unsure how the money will be applied in Texas. In any event, legislation may be required to create a fund in the State Treasury to handle surcharge receipts and disbursements.

The Authority is already addressing several matters contained in the Act. For example, Section 8 of the Act directs the U.S. Nuclear Regulatory Commission (NRC) to identify methods for the disposal of LLW other than shallow land burial. The Authority awarded a contract for the study of three disposal technologies that could be used at a Texas site: aboveground isolation, above/below ground concrete bunkers, and enhanced below ground confinement. Another study that the Authority has underway involves the identification of certain short-lived radionuclides generated in Texas that could be disposed of in sanitary landfills instead of in LLW disposal facilities. These radionuclides would still be subject to regulation by the Texas Department of Health's Bureau of Radiation Control, but at less expense and regulatory time. This study is similar to the requirements of Section 10 of the Act which directs the NRC to establish standards for acting upon petitions to exempt specific radioactive waste streams from NRC regulations that are "below regulatory concern".

One major concern of the Authority and the State of Texas is how continued access to the existing sites will be handled. The Act does not speak to the details of site access, but the three sited compacts approved by Congress do address this issue in their consent language. Texas currently ships over 90 percent of its LLW to the Richland, Washington site. The Northwest Compact says that a committee comprised of one official from each party state shall enter into arrangements with other states for access to compact facilities. However, this provision appears to conflict with the Amendments Act, which says that each sited state shall make disposal capacity available to non-sited states. The Northwest Compact also requires, as a condition of access, a binding agreement by the state of waste origin that the originating state will indemnify the compact state for expenses or

liabilities resulting in accidental releases of waste during shipment or at the site. The Texas Constitution may prohibit such an agreement.

These and other issues must be addressed before access can become a reality. At this point, it appears that the Governor's Office will negotiate for access on behalf of Texas generators.

CONCLUSIONS AND SUMMARY

Texas came close to designating a prime site in 1985, but did not because of political concerns. These concerns outweigh a purely technical site

selection process and, if unchecked, can drive the program. This will repeat itself in other regions and states because of the NIMBY syndrome. A qualified technical approach, a strong public relations effort, and an incentives program are necessary for future LLW disposal facility development.

Texas is working toward formal prime site designation in 1987, after site selection and preliminary characterization work. Facility design, operating procedures, and licensing will be conducted between 1986 and 1991. Construction leading to operational status should be on a 1991-1992 time frame, in accordance with the mandates of P.L. 99-240.