

LOW-LEVEL RADIOACTIVE WASTE ACTIVITIES IN TEXAS

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Texas Low-Level Radioactive Waste Disposal Authority

ABSTRACT

In September 1982, the Texas Low-Level Radioactive Waste Disposal Authority began the process for the selection, construction, and operation of a low-level radioactive waste disposal facility in Texas. The statute creating the Authority is a very comprehensive law which calls for the orderly completion of a step-by-step process in the development of the disposal facility. The organization of the Authority and its use of external resources, both professional organizations and citizens groups, are functioning extremely well in the performance of the Authority's objectives. Continued success will lead to the development and operation of a low-level radioactive waste disposal site in Texas prior to 1988.

INTRODUCTION

Since 1963, the Texas Department of Health (TDH) has had the authority for licensing and regulating the use of low-level radioactive materials within the State of Texas. This resulted from the Texas Radiation Control Act of 1961, under which Texas became an "agreement state" as defined by Section 274 of the Atomic Energy Act of 1954.

In response to the Uranium Mill Tailings Radiation Control Act of 1978, two bills were introduced during the 66th Session of the Texas Legislature (1979) to amend the Texas Radiation Control Act. These bills were brought before the Legislature primarily to ensure continuing state control over uranium mill tailings areas. The bills were designed to give the TDH control over all low-level radioactive materials, including low-level radioactive wastes and possible disposal sites. After much debate on and amendments to both bills, they died in session. However, both houses of the Legislature called for an interim study of the disposal of low-level radioactive materials.

During the interim, the idea of a Texas low-level radioactive waste disposal facility gained popularity due to the rumored shutdown or restrictions of the operating facilities in the country. The creation of a separate waste disposal authority was recommended by several organizations and individuals.

During the 67th Texas Legislature (1981), three bills were introduced to amend the existing radiation control statutes. These bills were designed to accomplish two objectives:

1. Bring the Texas statutes governing low-level radioactive materials in line with the Uranium Mill Tailings Radiation Control Act, thereby keeping regulatory control over these low-level radioactive materials within the state.
2. Set up a low-level radioactive waste disposal program.

The first bill dealt with the regulations which govern radioactive materials in Texas, the second with the regulation of uranium mine and mill tailings, and the third with the creation of a waste disposal authority for the disposal of low-level radioactive wastes generated in Texas. All three

bills passed, and on June 1, 1981, Governor Clements signed into law the bill creating the Texas Low-Level Radioactive Waste Disposal Authority (the Authority).

The Authority is charged with site selection, preparation, construction, operation, maintenance, decommissioning, closing, and financing of a low-level radioactive waste disposal facility for wastes generated solely within the State of Texas.

THE STATUTE

The Texas Low-Level Radioactive Waste Disposal Authority Act requires the Authority to be governed by a six-member Board of Directors. Each member is appointed by the Governor with the advice and consent of the Senate and serves a six-year term. The Board is composed of a medical doctor licensed to practice medicine in Texas, a certified health physicist, an attorney licensed to practice law in Texas, a geologist, and two members of the general public. Provisions have been made requiring the Governor to appoint, at the earliest opportunity, at least one representative of the general public who is a resident of the county in which the disposal facility is located.

The Act defines low-level radioactive waste as any radioactive material having a half-life of 35 years or less or that has less than 10 nanocuries per gram of transuranics, and may include radioactive material with a half-life of more than 35 years if special criteria are established by the Texas Radiation Control Agency (Texas Department of Health). Specifically excluded are irradiated reactor fuel and high-level radioactive waste as defined by Title 10, Code of Federal Regulations.

The Act is very explicit in outlining the requirements placed upon the Authority for the development of a low-level radioactive waste disposal site within the state. It requires the Authority to evaluate, at a minimum, the present and projected volumes of waste generated within the state, by type and source, and the geology, topography, transportation access and cost, meteorology, demographics, hydrology (both surface and subsurface), flora and fauna, land usage, and any other criteria the Authority deems appropriate in siting the facility. General guidelines used in the siting process were based on Title 10, Part 61, Code of Federal Regulations, and more restrictive requirements as outlined in TDH regulations.

In addition to the siting requirements, the Act requires that preoperating costs, operating costs, maintenance costs, and costs of decommissioning and extended care be thoroughly evaluated. The Act also requires that all environmental, public health, and socioeconomic impacts be evaluated prior to final site selection. Socioeconomic impacts include any city, county, or state services which may be affected. Interestingly, the Act also requires the evaluation of any actual, assumed, or perceived risks of the disposal site and its activities to the local area.

Upon completion of these tasks, the Board of Directors will select the prime candidate site. At this time, a detailed summary report will be prepared and distributed to the local citizens. This will be followed by a public hearing where citizens will be given the opportunity to present any information they may have concerning the proposed site and any comments or questions they may have concerning the summary report. The Board of Directors will then evaluate all information presented during the hearing. If the site is deemed suitable, the Board will authorize the purchase of the property, and the Authority will initiate site-specific activities and commence the licensing process. The Authority does not have the right of eminent domain and must purchase the property in the same manner as a private entity. Additionally, the Act requires the state to obtain all surface and mineral rights to the property. If the site is deemed to be unsuitable, the Authority will begin the selection process for another site.

The Act provides the Authority with the option of directly operating the site or of contracting with a private firm for day-to-day operation with management control retained by the Authority. The mode of operation will be determined prior to site construction.

The Act clearly stipulates that only wastes generated within the State of Texas may be accepted by the disposal site. For this reason, Texas has not been an active party, as have most other states, in the compacting process for regional low-level radioactive waste disposal. The state has, however, attempted to provide as much assistance and information as possible to other states and compacts concerning the various aspects of disposal facility siting, design, economics, health impact, and transportation.

The fiscal considerations provided by the Act authorize the Authority to draw those funds required to develop a disposal facility from the state's General Revenue Fund. In effect, this is an interest-free loan provided to the Authority to cover all expenses incurred up to the day of operation of the facility. Upon commencement of operations, the Authority is required to adopt fees sufficient to allow the recovery of all expenses incurred prior to operation of the site, amortized over a period of not more than 20 years; funds necessary to pay all licensing fees and provide for site security; all operating and maintenance costs; funds sufficient to meet the needs of impact assistance; and funds necessary to meet future costs of decommissioning and closing the disposal site. The Act authorizes the Authority to make grants to various political subdivisions to reimburse those entities for actual costs incurred as a result of the construction and

operation of a disposal site within or adjacent to the affected subdivision.

ORGANIZATION

The Authority is managed by a General Manager appointed by the Board of Directors and operates through four functional branches, Administrative Services, Legal Services, Special Programs, and Technical Services, as shown in Fig. 1.

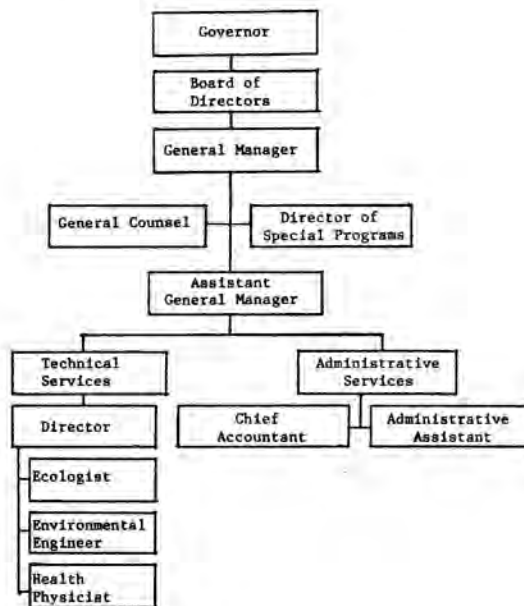


Fig. 1. Authority organization.

For state budgetary purposes, the Authority is structured under one program, Low-Level Radioactive Waste Disposal, with four activities: General Administration, Site Development and Construction, Site Management and Operation, and Impact Assistance to Local Governments.

The General Administration activity includes the General Manager, Assistant General Manager, General Counsel, Director of Special Programs, Chief Accountant, Administrative Assistant, and other administrative support staff. Operating funds for all Authority staff are included in this activity.

Site Development and Construction includes the Director of Technical Programs, technical staff, and support personnel. This activity also includes funding for site selection, engineering development, and licensing proceedings required for development and construction of the waste disposal facility.

Site Management and Operation includes funds necessary to operate the site for the physical emplacement of low-level radioactive waste materials. Since the management of the site may be contracted, the Authority does not currently include any staff in this activity.

Impact Assistance to Local Governments consists of grant funds to be disbursed to local governmental entities for additional fire, police, educational, utility, public access, and other expenses incurred due to the location of the site.

The Authority is presently authorized to employ 18 people; however, the current staffing level is 14. The present philosophy is to employ a small core of highly qualified individuals to manage and supervise the work of numerous consultants and contractors.

STUDIES

Upon completion of organization and staffing, the Authority initiated its first contract in December 1982. This study identified all producers of low-level radioactive waste within the state, their current and projected volumes, and isotopes used and their activities. Based on this information, the contractor provided the Authority with a site conceptual design and a state transportation evaluation. These three tasks were then used to prepare a fourth report estimating the projected cost-per-cubic-foot for disposal of low-level radioactive wastes. The contractor also provided a waste storage facility design.

In February 1983, the Authority began searching for potential waste disposal sites within the state. A three-phase approach was used to evaluate the entire state for suitable disposal areas. Phase I screened the entire state and identified 15 potential siting areas, each of which was one to several counties in size. The state was initially screened using five general exclusionary criteria:

1. Major aquifer recharge zones.
2. Major population centers (Standard Metropolitan Statistical Areas).
3. Areas of major mineral or energy deposits.
4. Geologically unsuitable areas such as fault zones and seismically active areas, areas of subsidence, mountainous areas, and complex bedrock geology.
5. State and National Park areas.

The remaining land areas were then further screened using other exclusionary criteria, such as depth to groundwater, and inclusionary criteria, such as transportation accessibility. Phase I resulted in the identification of over 35,000 square miles located in 105 counties for further evaluation.

Phases II and III of the study have not yet been completed. Phase II will identify about five candidate sites from within the potential siting areas. The search will first be narrowed by mapping those exclusionary criteria, such as location of habitats of endangered or protected species and slope and surface geological characteristics, and inclusionary criteria, such as favorable soil characteristics, which are more effectively applied on a regional scale. A confirmatory review of criteria used in Phase I will be performed to ensure that smaller exclusionary areas were not missed due to the scale used at the statewide screening. The potential locations identified through this process will then be numerically ranked in light of the site selection criteria, and the candidate sites will be identified.

Phase III of the study will develop site-specific data needed to refine the ranking of the candidate sites and identify two preferred sites. The geology and soils, surface and subsurface hydrology, local topography, and ecology will be studied and documented through borings and surveys at each of the candidate sites. Specific site boundaries, public road access, site design approaches, and engineering barrier approaches specific to each site will be defined. Present schedules indicate that two preferred sites will be identified in late March of 1984, and the prime site selected in late April 1984.

Other contracted studies which have been completed or are in progress include an evaluation of the economic impacts in the potential siting areas, a feasibility study for monitoring health effects, and a public opinion survey in the prime siting areas.

CITIZEN PARTICIPATION

Two advisory groups have been created to assist the Authority: the Citizens Advisory Panel and the Keystone Review Committee.

The Citizens Advisory Panel was established to enhance public awareness of Authority activities and to provide public input to the Authority. Since decisions on radioactive waste disposal policy are ultimately the responsibility of the Board of Directors, the panel functions solely in an advisory capacity. Regular, periodic meetings of the panel are held to facilitate the fulfillment of its responsibilities, which include evaluating and providing input to the Authority on various reports, rules, procedures, plans, and activities.

The Keystone Review Committee was established to facilitate dialogue between the Authority and citizens from potential siting areas. This committee provides a less formal, prehearing forum to identify and perhaps resolve issues of mutual concern to persons affected by the proposed facility. The committee's goal and function is to develop a report dealing with those concerns and outlining the manner in which the Authority attempts to resolve them. The review committee provides the Authority with the opportunity to respond to those concerns to the extent possible. Responses might include furnishing data, making changes in the project, or making other accommodations which might alleviate some of the public's concerns.

SCHEDULE

The Authority commenced operations in the fall of 1982. Present projections estimate the startup of the low-level radioactive waste burial facility to be late 1987. The Authority's milestone schedule can be broken down into six categories: (1) staffing and organization; (2) site studies, i.e., economics, design, siting, etc.; (3) site characterization; (4) license application and hearing; (5) site construction; and (6) site operations. The projected schedule of completion for these categories is demonstrated in Fig. 2.

The actual time expended to obtain the prime site is expected to be 16 months. It is anticipated that the license application will require 12 months to prepare and will undergo a 6-month review by the TDH. Following the review, 15 months have been scheduled for any contested hearings which may occur.

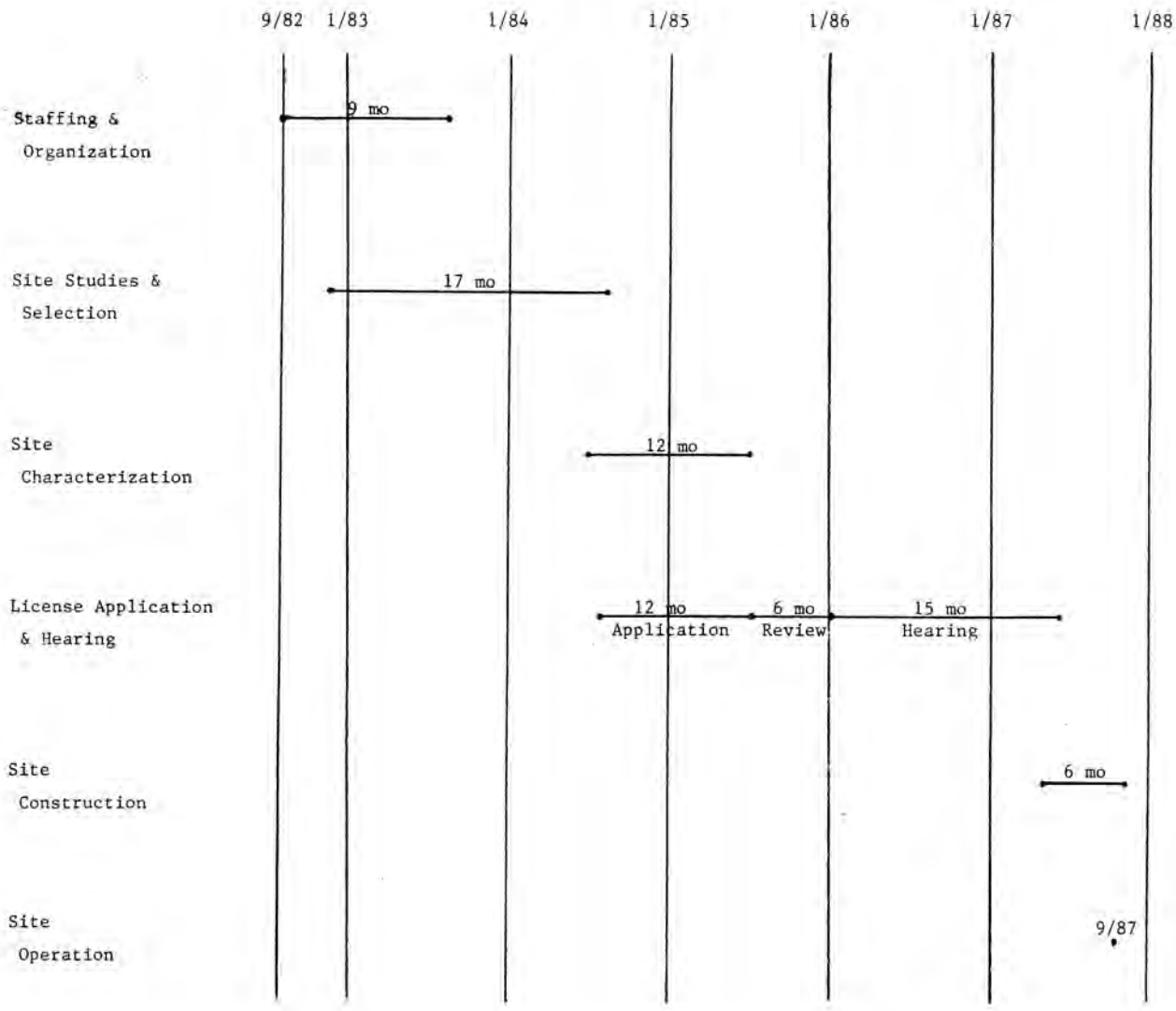


Fig. 2. Milestone Schedule.

CONCLUSION

The process of developing a low-level radioactive waste disposal facility for Texas was initiated in 1979. Barring unforeseen obstacles, it is projected that the facility will commence operations in 1987. This complicated and lengthy process will be repeated, in some fashion, in several different areas of the country, and there may be as many as nine low-level radioactive waste disposal facilities in operation throughout the United States by the early 1990s. It is hoped that the experiences of the State of Texas in developing its facility may be used by other states and compacts in the attempt to resolve the problem of low-level radioactive waste disposal.