March 30, 2001

Mr. Richard A. Ratliff, Chief
Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189

Dear Mr. Ratliff:

I am responding to your letter of February 27, 2001, in which you request views on the licensing of an assured isolation facility. You forwarded a letter from Honorable Warren Chisum of Texas, in which he asks, "What requirements would be necessary, in addition to Part 61, to establish an assured isolation facility in Texas?" The Commission's policy, as described in the enclosed correspondence, has been, and continues to be, that low-level radioactive waste (LLW) should be disposed of safely as soon as possible after it is generated. Thus, the Commission strongly supports State and compact efforts to develop new LLW disposal capacity in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985. However, in view of the many complex waste disposal issues currently facing this Nation, the Commission is open to serious consideration of any feasible and safe proposals.

An assured isolation facility, as originally described by its authors,[1] is intended initially to be a storage facility. Later, based on its performance, it could be converted to a disposal facility, subject to the requirements in effect at that time. Its authors describe it as a LLW management concept different from Part 61 near-surface disposal facilities. Instead of relying on site features to help in isolating waste like Part 61, an assured isolation facility relies more heavily on engineered barriers and "institutional controls," or the monitoring and maintenance of the facility, far into the future. Reliance on such controls is limited by Part 61 requirements to 100 years after facility closure. The assured isolation concept also preserves future options (such as the ability to remove waste and dispose of it elsewhere). Disposal of waste in 10 CFR Part 61 facilities is intended to be permanent and there are no requirements for retrievability. These important differences notwithstanding, an assured isolation facility has many of the characteristics and features of modern disposal facilities--concrete buildings and overpacks for wastes, an above-ground design, an extensive monitoring and maintenance program to ensure continued performance of the facility, and so forth. Although similar to or nearly identical to a disposal facility in its design, suitable licensing criteria for such a facility that protect public health and safety and the environment have not been defined. In the following response, we offer three different approaches for licensing an assured isolation facility for your consideration.

Approach 1-- Storage under 10 CFR Parts 30, 40 & 70. The Commission believes that Texas has the authority to license an assured isolation facility for storage of LLW in renewable terms and to defer a decision on its ultimate disposition to the future. We note that the Texas Natural Resources Conservation Commission (TNRCC) had a report prepared for it last summer that

includes licensing approaches for assured isolation.[2] Although NRC has not reviewed this

[1] "Assured Storage Facilities: A New Perspective on LLW Management" by W. Newberry, T. Kerr, D. Leroy, Radwaste Magazine, v.2, no.5, pp.13-22, September 1995.

[2] "Texas Compact Low-Level Radioactive Waste Generation Trends and Management Alternatives Study," Rogers and Associates Engineering Branch of URS. RAE-42774-019-5407-2. August 2000.

report, the initial licensing of such a facility for the possession and storage of LLW (under your equivalent to 10 CFR Parts 30, 40 and 70) is relatively straightforward from a public health and safety point of view, with the exception of issues associated with financial assurance for ultimate disposal and whether (and when) the facility would be considered permanent disposal. Converting the facility to a disposal facility at some time in the distant future is one of the options addressed in the TNRCC report. Issues would need to be addressed by Texas in the initial licensing, such as funding for removal and ultimate disposal of the waste if the facility was not or could not be licensed for disposal in the future. Texas would also need to determine whether such a facility meets the terms and obligations of the Texas Compact law. Finally, Texas would also need to examine how current regulatory limits on the possession of special nuclear material (SNM) might apply to an assured isolation facility. It is possible that an NRC license would also be required to possess SNM in a facility licensed by Texas, since the amounts of SNM might exceed those which Texas can license under its agreement with NRC. While obtaining a second license for possession of these materials is possible, it would be an added complication. If the State were to choose this approach, we would encourage you to coordinate resolution of issues with NRC.

Approaches 2 & 3- Disposal under 10 CFR Part 61: It would also be possible to license an assured isolation facility under Texas rules equivalent to NRC's disposal regulations in 10 CFR Part 61, while still preserving many of the desirable features of assured isolation. Such a facility, while licensed for disposal, could still incorporate the following:

- a robust engineered facility with concrete buildings and overpacks for waste;
- recoverability or retrievability of the waste for disposal elsewhere at some future time;
- institutional controls for the indefinite future, although reliance on such controls in our regulations is limited to 100 years; and
- funding sufficient for the long-term care program (such funding could potentially cover the removal of the waste and disposal elsewhere).

The engineered barriers would be relied on, at least in part, to meet our regulations, while other features, such as retrievability and funding for disposal in another facility, could be added at the discretion of the State. There are two basic alternatives for licensing under Texas disposal regulations equivalent to those in 10 CFR Part 61. The approach depends upon the design chosen for assured isolation.

Approach 2 -- 10 CFR Part 61 near-surface disposal. If an assured isolation facility were to be eventually covered with earth, it would be considered a near-surface disposal facility. This facility would be subject to the general performance objectives in 10 CFR Part 61, Subpart C, and to the detailed technical requirements that are contained in 10 CFR Part 61, Subpart D for near-surface disposal. The Commonwealth of Pennsylvania had planned such a facility at one

time, and had put into place regulations compatible with10 CFR Part 61. The proposed facility included recoverability of the waste and an institutional control program lasting more than 100 years. The facility was to remain uncovered for a long period of time for monitoring and then would have been covered with earth after it was closed. Because of the earthen cover, a facility such as this could be licensed under your detailed technical requirements for near-surface disposal equivalent to those in 10 CFR Part 61, Subpart D. We do not believe that any additional requirements from a safety perspective would be needed for such a facility. If Texas wanted to preserve certain features of assured isolation that are not mandated by 10 CFR Part 61, it could, at its discretion, specify an institutional control period longer than 100 years and contingency funds to remove the waste and dispose of it elsewhere at some future time.

Approach 3 -- 10 CFR Part 61 above-ground disposal. This approach for licensing would be for a facility that would not be covered with earth at any time in the future. Such a facility is considered to be an “above-ground” disposal facility, and while covered by 10 CFR Part 61, there are no detailed requirements for such a design in our regulations. It is not considered to be “near-surface disposal” and would not be subject to the well-developed requirements in 10 CFR Part 61 for near-surface disposal. The above-ground disposal concept is similar in some respects to entombment of low-level radioactive waste from nuclear power reactors in the containment building after cessation of operations. NRC is currently investigating whether a rulemaking is needed or desirable for entombment, and that effort may be useful if Texas pursues above-ground disposal. (See All Agreement States Letter STP-01-017, Request for Comments on an Advance Notice of Proposed Rulemaking and a Draft Rulemaking Plan Concerning an Entombment Options for Power Reactors, dated March 7, 2001.) When NRC amended 10 CFR Part 61 in 1993 to cover above-ground facilities, we noted that detailed technical criteria would need to be developed if such a facility were to be proposed. NRC has no plans to promulgate regulations for only one possible above-ground facility. If either Texas or some other organization were to develop the requirements that would be needed to ensure long-term isolation of waste with this type of facility, NRC would be willing to provide assistance with this effort. We have enclosed our 1993 final rule on above-ground facilities for your information. The lack of specificity in our regulations would provide some flexibility for the State in terms of what the criteria might be.

Finally, we note that there may be SNM implications for Approaches 2 and 3 depending on the amount of SNM stored at any one time prior to disposal.

We would be pleased to discuss these issues further. Please contact me or Spiros Droggitis of my staff at 301-415-3340 for further information.

Sincerely,

/RA/

Paul H. Lohaus, Director
Office of State and Tribal Programs

Enclosures:
As stated