

LOW-LEVEL RADIOACTIVE WASTE DISPOSAL

SITE TRANSFER PROGRAM

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ABSTRACT

Title I, Subtitle D, Section 151, of the Nuclear Waste Policy Act of 1982 authorizes the Secretary of the Department of Energy (DOE) to accept title and custody of low-level radioactive waste and the land on which such waste is disposed of, as well as certain special sites if the waste resulted from licensed activities to recover zirconium, hafnium, and rare earths from source materials. The background and framework within which the DOE is developing its program to implement the Section is described.

LEGISLATIVE HISTORY

Two types of radioactive waste disposal sites were included under Section 151 as a result of separate legislative histories--closed low-level radioactive waste disposal sites and special sites.

The authority for transfer of low-level radioactive waste disposal sites to the Secretary of Energy for long-term maintenance and monitoring is the result of discussions and recommendations by several organizations and councils. In 1979 the Interagency Review Group on Nuclear Waste Management recommended in its Report to the President that "...states be provided the option to retain management control of existing commercial low-level waste sites or to transfer such control to the federal government." DOE's Low-Level Waste Strategy Task Force had a similar recommendation in 1980 in a draft report Managing Low-Level Radioactive Wastes: A Proposed Approach. The most recent recommendation was the State Planning Council on Radioactive Waste Management which recommended in 1981 that "Congress enact legislation to provide that, upon satisfactory decommissioning and termination of a license for a new or existing low-level waste disposal site, title to the site may, at the host state's option, together with the perpetual care fund, be transferred to the Federal government for the purposes of extended care." Therefore, the transfer provisions of Subtitle D is not a new concept in the field of nuclear waste legislation. Similar language was included in the proposed 1980 nuclear waste legislation.

The provisions regarding special sites under Subtitle D resulted from congressional activities focused on several sites where specific activities resulted in the generation of low-level radioactive wastes. These sites have radioactive wastes disposed thereon and are held by private concerns that wanted to transfer them to the Federal Government. Because these sites were used solely for Atomic Energy Commission licensed activities and have been or are being stabilized by the site owners to NRC criteria, federal ownership recognizes a shared liability.

LEGAL AUTHORITY

Title I, Subtitle D--Low-Level Radioactive Waste of the Nuclear Waste Policy Act of 1982 contains three subsections that are summarized below.

1. Subsection (a) FINANCIAL ARRANGEMENTS--The Nuclear Regulatory Commission (NRC) is to establish by rule, regulation, or order, after public notice, standards and instructions as it deems necessary to ensure that adequate bond, surety, or other financial arrangement will be provided by a licensee to permit completion of all the requirements NRC establishes for decontamination, decommissioning, site closure, and reclamation of sites, structures, and equipment used in conjunction with the low-level waste. Such financial arrangements are to be provided and approved by NRC or the Agreement State before a disposal license is issued. In the case of the existing sites, before the license is terminated.

NRC shall also ensure that financial arrangements necessary for long-term maintenance and monitoring are made before termination of the license involved.

2. Subsection (b) TITLE AND CUSTODY--The Secretary of Energy has the authority to assume title and custody of low-level radioactive waste and the land on which such waste is disposed of, upon request of the owner of such waste and land after the license issued by the NRC for such disposal is terminated, if the NRC determines that--

(A) the requirements of the Commission for site closure, decommissioning, and decontamination have been met by the licensee involved and that such licensee is in compliance with the provisions of the subsection on financial arrangements

(B) such title and custody can be transferred to the Secretary without cost to the Federal Government; and

(C) Federal ownership and management of such a site is necessary or desirable in order to protect the public health and safety, and the environment.

If DOE assumes title and custody of any such waste and land under this subsection, the Department must maintain it in a manner that will protect the public health and safety, and the environment.

3. Subsection (c) SPECIAL SITES--If the low-level radioactive waste involved is the result of a licensed activity to recover zirconium, hafnium, and rare earths from source material, DOE, upon request of the owner of the site involved, shall assume title and custody of such waste and the land on which it is disposed when such site has been decontaminated and stabilized in accordance with the requirements established by NRC and when such owner has made adequate financial arrangements approved by the NRC for the long term maintenance and monitoring of such site.

EXISTING CLOSED SITES

In June 1981, the Conservation Foundation in Towards a National Policy for Managing Low-Level Radioactive Waste, stated that the three closed commercial low-level radioactive waste disposal sites were impediments to developing new sites because of the costs associated with the old sites. Undoubtedly this reasoning was an important motivation for including Subtitle D in the Nuclear Waste Policy Act of 1982. For the purposes of this paper, it is valuable to discuss each of these closed sites individually, since early candidates for transfer to the Federal Government under Subtitle D would likely be among the sites.

Maxey Flats

The Maxey Flats low-level radioactive waste disposal facility is located about 65 miles northeast of Lexington, Kentucky. It was opened as a commercial disposal site in January 1963, and operated by a commercial firm until December 1977. The site which is owned by the State of Kentucky includes some 46 closed trenches, one open trench, a number of hot wells, and several special pits. Approximately 5 million cubic feet of waste were disposed of at the site during its active life. Maxey Flats was closed primarily because of potential environmental problems; as long ago as the early 1970's water accumulation in the trenches was recognized as a problem. Consequently, the State required a more effective water management program.

The Maxey Flats site remains closed today although monitoring, maintenance and evaporator operations continue. Since its shutdown, the site has been the focus for a number of studies to determine the extent of the problem and suggest solutions. Efforts towards stabilizing the site prior to decommissioning and closure are in progress. Currently the state of Kentucky spends over \$1,000,000 per year to maintain the site. Estimates on the cost of permanent site closure range into the tens of millions of dollars.

West Valley

The West Valley low-level radioactive waste disposal facility is located at the Western New York Nuclear Service Center near West Valley, New York, and is owned by the State of New York. It was operated by a commercial firm from 1963 to 1975. During this period the site accepted over 2,000,000 cubic feet of waste which was disposed of in 14 trenches.

The potential for seepage of water from burial trenches in the northern part of the site had been a continuing concern since the early 1970's. In

March 1975, water had infiltrated into these trenches that only had 4 feet of cover and had seeped through the covers of a number of other trenches, flowing at a rate of approximately a gallon per day. Burial operations were halted at this time and commercial operations ceased at the site. Burial operations would not resume until all New York State Department of Environmental Conservation requirements for re-opening the burial area were met. No waste material has been disposed in this facility since that time, although subsequent remedial measures have been taken to alleviate the water accumulation problem.

The DOE was authorized in 1980 to conduct a demonstration project for solidification of the high-level radioactive waste stored at the Center. The low-level waste disposal site for wastes from the reprocessing plant is separated from the commercially operated disposal site and is being used for plant low-level wastes resulting from the solidification project.

Sheffield

The Sheffield, Illinois, radioactive waste disposal site is the only one to close because it was filled to capacity. The site began operations in 1967 after a lease had been signed between the site owner, the State of Illinois, and a commercial site operator. The site was operated from 1967 through April 1978, during which time more than 3 million cubic feet of waste were deposited in some 21 trenches. In the late 1970's the available disposal capacity of the 20 acre site was near exhaustion. The site operator applied to the NRC to compact existing trenches in order to provide more space and to dig an additional trench on their 20-acre site. When in 1978 the NRC rejected the construction of a new trench, operations at the site were suspended.

A 5-year U.S. Geological Survey which was begun in 1976 has shown that the site was underlain by more coarse grained sand deposits than had been known previously. Furthermore, tests have shown that small amounts of tritium was migrating through these sand deposits. Research efforts to improve knowledge of the site's hydrogeology are continuing. A number of other technical studies to determine the requirements for decommissioning have been completed or are in progress. Among the three closed sites, Sheffield is closest to completing those post-closure activities which are a prerequisite for license termination.

EXISTING OPERATING SITES

There are three operating commercial low-level radioactive waste disposal sites. These are: the Barnwell, South Carolina, facility operated by a commercial firm on land owned by the State of South Carolina; the Beatty, Nevada, facility operated by a commercial firm on land owned by the State of Nevada, and the Richland, Washington, facility which is operated by a commercial firm on land leased to the State of Washington by the Department of Energy. Since the Richland site is already on land owned by the Federal Government, it may not fall under the full provisions of Subtitle D.

SITE TRANSFER PROGRAM

DOE has two major responsibilities under Subtitle D. These are: (1) to consider cooperatively with the NRC low-level waste disposal site transfer applications; and, (2) to manage sites transferred to the Department in a manner that will protect the public health and safety and the environment. To carry out these responsibilities, the low-level waste disposal

site transfer program was begun in 1983. The Program has two major components. The first is to develop a process for determining the acceptability of closed radioactive waste disposal sites by the Secretary of Energy, and the second is to manage transferred sites in a manner to protect public health, safety, and the environment.

A program plan that describes major activities and schedules has been drafted. Principal elements of the plan are Process Development, Transfer Review, and Long-Term Management. These are described briefly below.

Process Development

Key to the success of the Program is DOE's coordination of its activities with the NRC and interested states. Consultation between DOE and NRC and the states will be ongoing throughout the development and implementation phases of the program. The NRC and DOE are presently discussing a framework for interaction that is expected to be formalized in an agreement on how transfer proposals will be processed.

The Program is developing guidance for low-level waste disposal site owners. This guidance will contain a description of the type of information that a site owner should include in a proposal for transferring the site to the DOE and information on how the proposal will be reviewed by the Department.

Transfer Review

Another important element in the program is the review of a proposal for transfer of a site to the DOE. The Department will conduct its review procedures in close cooperation with NRC. DOE's process will be flexible and compatible with NRC requirements for reviewing all steps of the transfer process. At the present time, DOE is considering a review process incorporating the following topical areas: technical status of the site, long-term maintenance and monitoring needs and costs, legal aspects, financial considerations, environmental impacts, and consultation with the NRC on their determinations required by Subtitle D. It is anticipated that the review criteria and process will be general in nature and adapted for each proposed site transfer due to the diverse nature of current low-level waste disposal sites.

Transfer review procedures for low-level waste disposal sites and special sites may necessarily differ. For low-level waste disposal sites, the site owner would be requested to apply to DOE for a transfer and the application would be reviewed concurrently by the Department and NRC. After the NRC makes their determinations on the site, DOE would decide on the acceptability of the application, complete negotiations with the site owner, and effect the transfer. For special sites, the owner would apply to NRC for determination that financial and technical requirements had been met; then DOE would arrange for transfer of the site.

Long-Term Management

A site specific management plan for each low-level waste disposal and special site would be developed after an application for transfer has been received if preliminary reviews indicated that the site was a likely candidate for transfer. Each site management plan would be site specific and use materials submitted by the owner and information gathered by a review team. Final plan development for a special site could

begin during the period in which the site was being examined by NRC since all needed information should be available.

After the site is turned over to the Secretary of Energy the Department would assume responsibility for site maintenance and monitoring. During the transfer review process the Department, state and the NRC would have reviewed the applicant's plans and/or activities conducted for stabilization as well as the maintenance and monitoring plan which form the basis of the applicant's cost estimates for long-term care. This latter plan will form the basis for DOE's long-term care activities.

DOE's period of institutional control will probably last at least the 100 years, at a time period derived from 10 CFR 61. As the institutional period comes to a close, DOE will inspect the site to determine if the performance objectives to protect the public and the environment have been met and if long-term care can end. DOE will then determine the end use of the site.

Site Transfer Schedule

Both the physical and financial conditions of each site as well as its operating status will affect the estimate of when a transfer might occur. It is expected that one or more of the owners of the existing closed low-level waste disposal sites will be first to apply.

The number of sites that will be included under the special sites provision of the law remains uncertain at this time. Only the site at Parkersburg, West Virginia, is a candidate under this provision at the present time.

CONCLUSION

The Department of Energy's plans for implementing its responsibilities under Subtitle D of the Nuclear Waste Policy Act of 1982 has been described briefly. Cooperation with NRC and the states that DOE anticipates will be necessary to accomplish the review and transfer of closed waste disposal sites is an important aspect of the Program. Finally, by setting responsibility for the final disposition of certain existing land disposal sites with the Federal Government, concerns regarding their long-term care should be alleviated, thereby allowing states to direct their attention towards providing new disposal facilities for low-level radioactive wastes.

REFERENCES

1. "Nuclear Waste Policy Act of 1982," Public Law 97-425, 96 STAT 2201-2263 (Jan. 7, 1983).
2. "Licensing Requirements for Land Disposal of Radioactive Waste," Federal Register, Vol. 47, No. 248, pp. 57446-57482 (Dec. 27, 1982).