REGULATION AND LICENSING OF LOW-LEVEL WASTE STORAGE FACILITIES: ONSITE, CENTRALIZED AND COMMERCIAL STORAGE OPTIONS

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ABSTRACT

The paper discusses the laws, regulations, and policies related to the storage of low-level waste (LLW) in onsite and potential, future centralized storage facilities, and in particular the circumstances under which a new license or a license amendment may be required for LLW storage. It also discusses the principal regulatory issues that may arise in the licensing process if a new license or a license amendment is required for LLW storage. These include such issues as the potential for adjudicatory hearings, environmental assessments, liability issues and the implications of the NRC's policy disfavoring storage. The paper also briefly addresses the general content of a storage facility license application.

INTRODUCTION

This paper discusses the laws, regulations, and policies related to the storage of LLW in onsite and potential, future centralized storage facilities, and in particular the circumstances under which a new license or a license amendment may be required for LLW storage. It addresses the principal regulatory issues that may arise in the licensing process for both commercial power reactors and materials licensees. The paper assumes that an onsite storage facility would be located at, and only store LLW from, the generating facility at the same location. A centralized storage facility, on the other hand, would accept and store LLW generated at other sites, whether or not such sites are owned by the storage facility licensee.

APPLICABLE LAWS, REGULATIONS, AND POLICIES

Before discussing the principal regulatory issues related to LLW storage, it is helpful to briefly discuss those laws, regulations, and policies that apply to the operation of LLW storage facilities. There are few specific NRC regulations dealing directly with the storage of LLW. However, LLW storage is governed by 10 CFR Part 20, and other generally applicable NRC regulations that assure that radiation exposures to workers and the public from storage operations do not exceed applicable limits and are "as low as is reasonably achievable" (ALARA).

The NRC has published one new proposed regulation regarding LLW storage entitled "Procedures and Criteria for On-Site Storage of Low-Level Radioactive Waste," 58 Fed. Reg. 6730 (Feb. 2, 1993). If adopted, that regulation would require licensees to "exhaust[] other reasonable waste management options," including reasonable efforts to contract for access to disposal capacity, as a condition of storing LLW onsite or in a centralized facility beyond January 1, 1996. This rule is not yet final, and it now appears that the NRC may abandon it, based on a determination that it is not likely to substantially expedite development of new LLW disposal capacity.

For commercial power reactors, NRC Generic Letter 81-38 (GL 81-38) provides valuable insight into the NRC's views and policies concerning onsite LLW storage. GL 81-38 states that a licensee may increase onsite LLW storage capacity without prior NRC approval only if: 1) the existing license conditions or technical specifications do not prohibit increased storage; 2) no "unreviewed safety question" exists; and 3) the proposed increased storage capacity does not exceed the generated waste projected for five years. While GL 81-38 does not impose any binding regulatory requirements, it does reflect the NRC's general policy disfavoring extended LLW storage and favoring permanent disposal. It also generally describes the types of information that would be required to support NRC licensing of a LLW storage facility, if such licensing is determined to be necessary. Similar criteria applicable to NRC materials licensees are found in NRC Information Notice 90-09.

PRINCIPAL REGULATORY ISSUES

The principal regulatory issues associated with the operation of LLW storage facilities include the following:

- Need for additional license authority
- Potential for state regulatory jurisdiction
- Scope of environmental reviews
- NRC policy-based constraints
- Liability and indemnification
- Facility design and operation issues

Each of these is briefly discussed below.

Need For Additional License Authority

Under 10 CFR § 50.59, a reactor licensee may make changes in its facility and procedures without prior NRC approval so long as such changes do not represent modifications in the technical specifications incorporated in its license, or an unreviewed safety question. For most reactor licensees, operating an onsite LLW storage facility would constitute neither a change in technical specifications nor an unreviewed safety question. Therefore, under Section 50.59, a reactor licensee should be able to operate an onsite LLW storage facility under its existing license without any additional NRC approval.

If a licensee plans to store LLW onsite for more than five years, however, it may have to obtain additional licensing authority. As noted above, GL 81-38 states that a licensee may increase onsite LLW storage capacity without prior NRC approval only if the requirements in Section 50.59 are satisfied and the proposed increase in capacity does not exceed the generated waste projected for five years. Although the NRC has repeatedly acknowledged that GL 81-38 is a non-binding

guidance document, it continues to reference and use it in its decision-making processes.* Therefore, it is possible that the NRC may require a Part 30 license for onsite LLW storage lasting more than five years. However, given the non-binding nature of GL 81-38, such storage should not, in and of itself, trigger a Part 30 license requirement.

Should the NRC nevertheless require a Part 30 license, any administrative hearing that may be held on the license application would be conducted under the "informal hearing procedures" contained in 10 CFR Part 2, Subpart L. Subpart L hearings are conducted before a single administrative law judge (ALJ), rather than a three-member Atomic Safety and Licensing Board (ASLB). There is no time-consuming and costly "discovery" process, and typically, no need for witnesses to testify in person. Arguments and information are presented in written submissions, and inquiries and fact-finding are conducted by the ALJ, rather than the parties themselves. Moreover, the Staff may, in its discretion, complete its regulatory reviews and issue a license prior to the completion of the hearings. Part 30 licenses, though renewable, generally expire five years after their date of issuance.

With respect to a centralized storage facility, a reactor licensee must, at a minimum, obtain a new Part 30 license for such a facility in order to obtain authorization for the storage of LLW not generated at the centralized storage facility site. Such a conclusion, in a particular case, would be based upon the rationale that: 1) the existing license allows existing storage activities; 2) the new Part 30 license would authorize the licensee to receive and store LLW generated at other locations; 3) taken together, the Part 30 license and the existing Part 50 license provide sufficient authority for operation of the centralized storage facility; and 4) operation of the centralized facility would not be inconsistent with the Part 50 license.

NRC concurrence that no Part 50 amendment is necessary may be critical to the feasibility of a utility decision to operate a centralized storage facility. If a Part 50 amendment is required, any hearing that may be held would be a formal adjudicatory hearing conducted by a full ASLB and would involve discovery and oral testimony by witnesses. The costs and complexity of such a proceeding are likely to substantially exceed those of a Subpart L proceeding.

However, one benefit related to a Part 50 license amendment is that of "longevity." An amended Part 50 license, unlike a new Part 30 license (which generally expires after five years), remains effective until the date of expiration of the original Part 50 license.

Section 50.59 does not apply to materials licensees, and there is no mechanism analogous to the Section 50.59 "unreviewed safety question" process applicable to such licensees. Therefore, materials licensees must obtain prior NRC approval if the operation of their LLW storage facility is expected to result in any changes to, or exceed, license requirements and conditions.

Even for materials licensees, the NRC will likely take a hard look at the safety of LLW storage plans exceeding five years. However, as with reactor licensees, LLW storage exceeding five years should not, in and of itself, necessitate additional licensing approval.

Potential For State Regulatory Jurisdiction

Section 274b of the Atomic Energy Act of 1954 (AEA) authorizes the NRC to enter into agreements with any State providing for discontinuance of the NRC's regulatory authority over, among other things, certain source, special nuclear, and byproduct materials. In addition, the AEA and the NRC's regulations (10 CFR § 150.15(a)) prohibit States from exercising regulatory jurisdiction over the "construction and operation of any production or utilization facility." Section 150.15(a) specifically provides that "operation" of such a facility:

> includes, but is not limited to (i) the storage and handling of radioactive wastes at the facility site by the person licensed to operate the facility . . . .

Thus, the NRC retains exclusive regulatory jurisdiction over a utility's operation of an onsite LLW storage facility. Agreement States may not regulate such onsite storage facilities.

The NRC also would likely retain exclusive jurisdiction over a utility-operated centralized storage facility, though the issue is a bit more complex. As noted above, exclusive NRC jurisdiction extends to, among other things, the "storage and handling of radioactive wastes at the facility site by the person licensed to operate the facility . . . ." Under a narrow interpretation of this provision, a State might assert that the storage and handling at a centralized facility of LLW generated at another location is not "at the facility site," not an element of "operation," and thus not within the NRC's exclusive jurisdiction.

However, in a number of NRC guidance documents and internal memoranda, including a 1985 memorandum from the NRC's Executive Legal Director, the NRC has taken the position that even storage of non-utility LLW within the exclusion area of a reactor site is subject to exclusive NRC jurisdiction. That position is based not only on the need to preserve NRC authority over the "operation" of nuclear power plants under section 274b of the AEA, but also on 10 CFR Part 100, which requires reactor licensees to maintain full control over an exclusion area.

Section 150.15(a) does not apply to materials licensees. Thus a LLW storage facility operated by a materials licensee may be within the regulatory jurisdiction of an Agreement State.

Scope Of Environmental Reviews

For an onsite storage facility, assuming that no new licensing action is required, no environmental review would be needed under the National Environmental Policy Act (NEPA) either for a utility or a materials licensee. To the extent that a Part 30 license is required, the licensee must conduct an evaluation of the environmental impacts of the proposal and the NRC must perform an environmental assessment (EA) to determine whether the licensing action constitutes a "major federal action significantly affecting the quality of the human environment," which would compel the preparation of a full environmental impact statement (EIS). The probability of an NRC determination that the licensing of an onsite storage facility represents a "major federal action" seems relatively small.

* E.g., Cleveland Electric Illuminating Plant (Perry Nuclear Power Plant, Unit 1), DD-93-5, 37 NRC 238 (1993).

As for a centralized LLW facility, a comparison of the licensing of such a facility to certain prior actions taken by the NRC leads to the conclusion that the relevant environmental impacts are also unlikely to trigger the need for an EIS. In the past, the NRC has determined that no EIS was required for: 1) authorization of the transhipment of spent fuel from Duke Power Company's Oconee Station to its McGuire Station; 2) promulgation of regulations on the storage of spent fuel in independent spent fuel storage installations (10 CFR Part 72); and 3) issuance of the rule authorizing the "receipt back" of LLW by reactor licensees after offsite processing. These actions suggest that, while the NRC retains the discretion to prepare an EIS, it is unlikely to do so in the context of LLW storage.

NRC Policy-Based Constraints

It has been the NRC's consistent policy to encourage permanent LLW disposal, and to disfavor temporary storage both for reactor licensees and materials licensees. The NRC recognizes, of course, that licensees faced with no near term access to disposal capacity must make appropriate provisions for LLW storage. Accordingly, as previously noted, the NRC has issued a proposed regulation that would require licensees to "exhaust[ ] other reasonable waste management options," including reasonable efforts to contract for access to disposal capacity, as a condition of storing LLW beyond January 1, 1996.

Centralized storage implicates an additional aspect of the NRC's policy. The NRC has expressed concern that licensees' storage operations may divert management attention from safe reactor operations. For this reason, the NRC has strongly opposed utility storage of non-utility waste.* In addition, the NRC has considered allowing utilities to ship LLW among separate reactor sites for purposes of volume reduction under its "receipt back" rule. In directing a case-by-case review of such activities (instead of a blanket authorization under the rule), the Commission stated its opposition to "practices at reactor facilities that may divert the attention of licensee management from the primary task of safe operation of the power reactor." 57 Fed. Reg. at 47980 (Oct. 21, 1992).

Liability and Indemnification

For onsite LLW storage, any third party liability that a reactor licensee may incur as a result of the operation of a storage facility would likely be covered under most existing insurance coverages and indemnification agreements with the NRC. With respect to centralized storage, the NRC has never explicitly addressed whether indemnification agreements pursuant to the Price-Anderson Amendments Act of 1988 extend to utility centralized storage facilities. Based upon the language and policy of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," Price-Anderson protection may well extend to centralized facilities. Price-Anderson protection does not apply to most materials licensees and appropriate insurance coverage, or other protection, must be obtained.

Facility Design And Operation Issues

Whether the licensing of an onsite or centralized LLW storage facility may be complicated by design or operational issues depends on the specific design and operating plans proposed by the licensee. However, as general matter, there are two technical issues that may arise concerning centralized storage which do not appear in the context of onsite storage.

First, centralized storage necessarily involves shipments of LLW among at least various facilities of a single licensee. The environmental impacts of such shipments will need to be included in the licensee's and the NRC's environmental reviews. Second, shipments of LLW to a centralized facility may result in increased waste volumes and additional waste streams. Again, the environmental impacts and operating arrangements for accommodating such waste will need to be addressed in the licensing process.

ELEMENTS TO BE CONSIDERED WHEN APPLYING FOR A LICENSE

If the NRC determines that a new Part 30 license or a Part 50 license amendment is required in order to operate an onsite or a centralized LLW storage facility, there are several issues that a licensee may need to discuss in its license application. There is, however, no standard format and content guide for such an application and no other detailed NRC guidance on the content of the application.

While not all of the following elements may be legally necessary, those which should at least be considered by a potential storage facility license applicant include: 1) concept of operations; 2) location and design of the facility; 3) waste types, forms, and containers; 4) storage duration and capacity; 5) compliance with dose limits and ALARA requirements; 6) surveillance; 7) accident mitigation; 8) decommissioning funding; 9) emergency plan; 10) impact on operations; 11) impact on disposal alternatives; 12) waste minimization and volume reduction programs; 13) plans for LLW transportation; 14) recordkeeping; 15) other permits and approvals; and 16) environmental evaluations. While a detailed analysis of these elements is beyond the scope of this paper, a set of reasonable license components can be drawn from existing NRC regulations, guidance documents and other sources.

CONCLUSION

LLW storage by many NRC and Agreement State licensees for extended periods of time seems inevitable given the status of progress in siting new LLW disposal facilities. While in most cases such storage can proceed without prior NRC licensing approval, there are some conditions and factors which may necessitate such approval. Processing of a storage facility license application by the NRC or an Agreement State will be a matter of first impression. The regulatory issues discussed in this paper are likely to be among the most significant faced in determining whether a license application is required, and if so, how best to assure favorable regulatory treatment of the application.

* See Generic Letter 85-14, "Commercial Storage at Power Reactor Sites of Low-Level Radioactive Waste Not Generated By the Utility."