

13 DECOMMISSIONING EVALUATION

13.1 Conduct of Review

The objective of the review is to determine whether the applicant's provisions for decommissioning the Facility provide reasonable assurance that decontamination and decommissioning of the Facility at the end of its useful life provide adequate protection to the health and safety of the public. The review considers information presented in the Preliminary Decommissioning Plan in Appendix B of the License Application as well as the Chapters 3, 6, 7, and 9 of the SAR to determine whether the following regulatory requirements are satisfied:

- 10 CFR 72.30 requires that each application under this part include a proposed decommissioning plan that contains sufficient information on the proposed practices and procedures for the decontamination of the site and for disposal of residual radioactive materials after all spent fuel has been removed. This plan must identify and discuss those design features of the ISFSI that facilitate decontamination and decommissioning. Also, a decommissioning funding plan must be included and financial assurance for decommissioning must be provided.
- 10 CFR 72.130 requires that the ISFSI be designed for decommissioning. Provisions must be made to facilitate decontamination of structures and equipment, minimize the quantity of radioactive wastes and contaminated equipment, and facilitate the removal of radioactive wastes and contaminated materials at the time the ISFSI or MRS is permanently decommissioned.

13.1.1 Cask System Design Features

The Facility will use the HI-STORM 100 Cask System. Decommissioning considerations for this cask system are discussed in the HI-STORM 100 FSAR (Holtec International, 2000). During certification of the HI-STORM 100 Cask System, the staff found the cask system design to be favorable to decommissioning (NRC, 2000a, 2000b).

The HI-STORM 100 Cask System is a canister-based storage cask system in which the fuel is stored in a dry, inert environment inside of a sealed metal canister. The canisters are loaded, sealed, and decontaminated at the originating power plant. This enables the sealed canisters to be shipped to the Facility, stored, and removed from the site without having to open the canister or handle fuel assemblies; thus, preventing contamination of the Facility equipment. The Canister Building, canister transfer equipment, storage cask and storage pad are not expected to have residual radioactive contamination because: (1) the canisters are sealed by welding; (2) when the fuel is loaded at the originating reactors, measures are taken to prevent contamination of the canister outer surface; (3) the canisters are not permitted to be transported to the Facility unless surveys determine that surface contamination levels are below specified limits; and (4) neutron activation of the storage cask and pad materials will be insignificant because the neutron flux from the spent fuel will be sufficiently low.

The staff finds that, in accordance with 10 CFR 72.130, the Facility design features satisfactorily facilitate decontamination, minimize the quantity of radioactive waste and

contaminated equipment, and facilitate removal of radioactive wastes and contaminated material at the time that the Facility is decommissioned.

13.1.2 Facility Design and Operational Features

Design and operational features that are favorable to decommissioning include the use of a canister-based storage system. This allows the spent fuel, which is sealed within the canisters, to be shipped to the Facility, placed in storage, and removed from the site without having to open the canister or handle fuel assemblies. Thus, the potential for contamination is minimized. Decommissioning takes place after the spent fuel has been removed from the Facility. Other features that prevent or minimize the generation of radioactive waste or contamination are discussed in Sections 3 and 14 of this SER.

The Preliminary Decommissioning Plan and SAR also identify the Facility design and operational features that facilitate eventual decontamination and decommissioning. These include minimizing contamination, maintaining accurate records of spills or other unusual occurrences involving the spread of contamination, and maintaining accurate as-built drawings. These features are discussed in Section 13.1.3 below.

The staff finds that the Facility design and operational features satisfactorily facilitate decontamination, minimize the quantity of radioactive waste and contaminated equipment, and facilitate removal of radioactive wastes and contaminated material at the time that the Facility is decommissioned.

13.1.3 Decommissioning Plan

Review of the Preliminary Decommissioning Plan included consideration of: (a) the overall adequacy and completeness of the Preliminary Decommissioning Plan, including proposed decontamination and decommissioning activities, (b) the decommissioning cost estimate, and (c) the financial assurance mechanism. The review considered how the Preliminary Decommissioning Plan and SAR addressed the following requirements of 10 CFR 72.30, Financial Assurance and Recordkeeping for Decommissioning:

- 10 CFR 72.30(a) requires that each application under this part include a proposed decommissioning plan that contains sufficient information on the proposed practices and procedures for the decontamination of the site and for disposal of residual radioactive materials after all spent fuel has been removed. This plan must also identify and discuss those design features of the ISFSI that facilitate decontamination and decommissioning at the end of its useful life.
- 10 CFR 72.30(b) requires that the proposed decommissioning plan also include a decommissioning funding plan.
- 10 CFR 72.30(c) requires that the financial assurance for decommissioning be provided.

The staff also notes that, in accordance with 10 CFR 72.30(d), PFS must keep records of information important to the decommissioning of the Facility.

Preliminary Decommissioning Plan, 10 CFR 72.30(a)

The applicant submitted a Preliminary Decommissioning Plan which describes the conceptual program for decontaminating and decommissioning the Facility. The plan states that “the objective of decommissioning activities for the Facility is to remove all radioactive materials having activities above the applicable NRC release limits in order that the site may be released for unrestricted use, and the NRC license terminated.”

As part of meeting this objective, the applicant plans to implement measures that reduce the potential for contamination, thus, facilitating decontamination and decommissioning. The dual-purpose canisters arriving at the Facility are expected to have only minimal, if any, external surface contamination. A canister would not be permitted to be transported to the Facility if surveys performed at the originating power plant during loading indicate that the surface contamination levels exceed the acceptable limits for the specific canister design. A survey will be performed upon receipt of the canisters at the Facility, and canisters with surface contamination levels above acceptable limits will be returned to the originator. Further, the canisters, which are sealed by welding, will not be opened at the Facility. Thus, the possibility of a canister contaminating the Canister Transfer Building, the canister transfer equipment, the transfer cask, the storage casks, and storage pad is minimized. Nevertheless, the interior concrete surfaces of the Canister Transfer Building will be coated with paint or epoxy, which is non-porous and can be easily decontaminated by wiping.

The Preliminary Decommissioning Plan also provides a general discussion of decommissioning tasks. Before decommissioning activities begin, the spent fuel canisters will be shipped off-site using a cask approved under 10 CFR Part 71. Facility structures and components, including storage casks, will be decontaminated to the extent practicable by conventional methods such as wiping or stripping of paint. Structures or components with residual contamination or activation levels above regulatory limits will be packaged and disposed of as low-level waste. Radioactive waste generated during decontamination will also be packaged and disposed of as low-level waste. A radiological survey of the Facility will be performed, with particular attention to areas of known or historic contamination. A final radiation survey will be conducted to verify that any radioactivity at the site is below the applicable NRC limits such that the site can be released for unrestricted use.

The staff has reviewed the Preliminary Decommissioning Plan. The staff finds that the Preliminary Decommissioning Plan includes sufficient discussion of the applicant’s proposed practices and procedures for minimizing contamination at the Facility. The plan also includes sufficient discussion of the applicant’s conceptual program for decommissioning the Facility. The Preliminary Decommissioning Plan sufficiently identifies and discusses the design and operational features of the ISFSI that facilitate its decontamination and decommissioning. The staff finds that the Preliminary Decommissioning Plan satisfies 10 CFR 72.30(a).

Financial Assurance, 10 CFR 72.30(b) and 72.30(c)

The applicant’s financial qualifications are evaluated in Chapter 17 of this SER. The objective of that evaluation is to determine compliance with the decommissioning funding and financial assurance requirements of 10 CFR 72.30(b) and 72.30(c).

Records of Information Important to Decommissioning, 10 CFR 72.30(d)

The Preliminary Decommissioning Plan includes a commitment by the applicant to maintain the following records that are identified by 10 CFR 72.30(d) as important to decommissioning:

- records of spills or other unusual occurrences involving the spread of contamination [required by 10 CFR 72.30(d)(1)];
- as-built drawings and modifications of structures and equipment in restricted areas [required by 10 CFR 72.30(d)(2)];
- a document, which is updated a minimum of every 2 years, listing all areas designated at any time as restricted areas and all areas outside of restricted areas involved in a spread of contamination [required by 10 CFR 72.30(d)(3)]; and
- records of the cost estimate performed for the decommissioning funding plan [as required by 10 CFR 72.30(d)(4)].

13.2 Evaluation Findings

The staff has reviewed the SAR and the Preliminary Decommissioning Plan submitted by the applicant for the PFS Facility. The staff has determined that the preliminary decommissioning plan submitted by the applicant provides reasonable assurance that decommissioning issues for the PFS Facility have been adequately discussed, so that the site may ultimately be made available for unrestricted use for any private or public purpose. The staff, therefore, concludes that the proposed decommissioning plan complies with 10 CFR Part 72.

13.3 References

Holtec International. 2000. *Final Safety Analysis Report for the Holtec International Storage and Transfer Operation Reinforced Module Cask System (HI-STORM 100 Cask System)*. Volumes I and II. HI-2002444. Docket No. 72-1014. Marlton, NJ: Holtec International.

Nuclear Regulatory Commission. 2000a. *10 CFR Part 72 Certificate of Compliance No. 1014, Amendment 0, for the HI-STORM 100 Cask System*. Docket No. 72-1014. May 31.

Nuclear Regulatory Commission. 2000b. *Holtec International HI-STORM 100 Cask System Safety Evaluation Report*. Docket No. 72-1014. May.

Private Fuel Storage Limited Liability Company. *License Application for the Private Fuel Storage Facility*. Docket Number 72-22. June 20, 1997, as amended May 22 and August 28, 1998; May 19, August 10, August 27, September 8, September 21, December 16, 1999; and February 2, March 17, April 14, May 8, June 23, July 18, July 27, August 11, August 31, September 14, and September 25, 2000.

Private Fuel Storage Limited Liability Company. 2000. *Safety Analysis Report for Private Fuel Storage Facility*. Revision 18. Docket No. 72-22. La Crosse, WI: Private Fuel Storage Limited Liability Company.