1 GENERAL DESCRIPTION

1.1 Conduct of Review

Chapter 1 of the Private Fuel Storage Facility (PFS Facility or the Facility) Safety Analysis Report (SAR) provides a general, nonproprietary description of the major components and operations of the Facility and of the site. The objective of this Chapter of the SAR is to familiarize the reader with the pertinent features of the installation.

1.1.1 Introduction

The Facility is an independent spent fuel storage installation (ISFSI) that uses dry cask storage technology. In accordance with 10 CFR 72.42, the Facility would be initially licensed for 20 years. Before the end of this license term, the applicant may submit an application to renew the license. If granted, all spent fuel will be transferred offsite and the Facility will be ready for decommissioning by the end of the second term.

The Facility will be located on the Reservation of the Skull Valley Band of Goshute Indians. The Reservation is geographically located in Tooele County, Utah, 27 miles west-southwest of Tooele City, Utah. No large towns are located within 10 miles of the proposed site. The Skull Valley Band of Goshute Indians' Village, which has about 30 residents, is 3.5 miles east-southeast of the site. The site will cover 820 acres of the Reservation's 18,000 acres.

Interstate Highway 80 and the Union Pacific Railroad main line are approximately 24 miles north of the site. Shipping casks approved under 10 CFR Part 71 will be used to transport the spent nuclear fuel to the Facility. The shipping casks will either be off-loaded at an intermodal transfer point near Timpie, Utah, and loaded onto a heavy haul tractor/trailer for transporting to the Facility, or transported via a new railroad line connecting the Facility directly to the Union Pacific main line. The shipping casks and their mode of transport to the Facility are not considered in this safety evaluation report (SER). The Facility will be accessed by a new road from the Skull Valley Road as shown in Figure 1.1-1 of the SAR.

The applicant proposes to begin commercial operation in June 2002.

1.1.2 General Description of the Private Fuel Storage Facility

The Facility is designed to store up to 40,000 metric tons of uranium (MTU) in the form of spent fuel from commercial nuclear power plants in sealed metal canisters. The spent fuel assemblies are placed in sealed canisters, which are then placed inside a steel and concrete storage cask. The ISFSI, consisting of approximately 4,000 storage casks, is passive and does not rely on active cooling systems.

The Facility's restricted area is approximately 99 acres surrounded by a chain link security fence and an outer chain link nuisance fence. An isolation zone and intrusion detection system are located between the two fences. The cask storage area that surrounds the concrete cask storage pads that support the storage casks is surfaced with compacted gravel that slopes slightly to allow for runoff of storm water. Each concrete pad supports up to eight storage casks in a 2 × 4 array. The Canister Transfer Building, where canisters are transferred from the

shipping cask to the storage cask, is located within the restricted area. An overhead bridge crane and a semi-gantry crane are located within the Canister Transfer Building to facilitate shipping cask loading/unloading operations and canister transfer operations.

The staff finds that the site and Facility descriptions have sufficient detail to allow familiarization with the site characteristics of the proposed ISFSI.

1.1.3 General Systems Description

The dry cask storage system that has been identified for use at the Facility is the HI-STORM 100 Cask System (the cask system). The cask system is a canister-based storage system that stores spent fuel in a vertical orientation. It consists of three discrete components: the multi-purpose canister (MPC), the HI-TRAC transfer cask, and the HI-STORM 100 storage overpack. The MPC is the confinement system for the stored fuel. The HI-TRAC transfer cask provides radiation shielding and structural protection of the MPC during transfer operations. The storage overpack provides radiation shielding and structural protection of the MPC during storage. The cask system stores up to 24 pressurized water reactor (PWR) fuel assemblies or 68 boiling water reactor (BWR) fuel assemblies. The HI-STORM 100 Cask System is passive and does not rely on any active cooling systems to remove spent fuel decay heat.

The spent fuel is loaded into the MPCs at the originating nuclear power plant. Before transport, the MPC's lid is welded in place and the canister is drained, vacuum dried, filled with an inert gas, sealed, and leak tested. Shipping casks that are approved under 10 CFR Part 71 (e.g., the HI-STAR 100) are used to transport the MPCs from the originating power plants to the Facility. At the Facility, the shipping cask is lifted off the transport vehicle and placed in a shielded area of the Canister Transfer Building, called a transfer cell. The MPC is transferred from the shipping cask to the transfer cask, then from the transfer cask into the storage cask. The storage cask, loaded with the MPC, is then closed, and moved to the storage area using a cask transporter and placed on a concrete pad in a vertical orientation.

A general description of the cask system and its operation is provided in the SAR. A detailed description of the cask system is given in the Final Safety Analysis Report (FSAR) for the HI-STORM 100 Cask System (Holtec International, 2000), which is referenced in the SAR. The staff finds that the description of the storage cask system to be used at the Facility is sufficiently detailed to allow familiarization with its design and use at the proposed ISFSI.

The HI-STORM 100 Cask System has been approved by the U.S. Nuclear Regulatory Commission (NRC) for use under the general license provisions of 10 CFR Part 72, Subpart K. The HI-STORM 100 Cask System is approved under Certificate of Compliance No. 1014, effective date May 31, 2000, Docket No. 72-1014 (Nuclear Regulatory Commission, 2000a). The staff's evaluation of the cask system for general use is documented in the NRC's "Holtec International HI-STORM 100 Cask System Safety Evaluation Report" (Nuclear Regulatory Commission, 2000b), which was issued with the certificate of compliance. For site-specific use at the Facility, the applicant evaluated the cask system against the parameters and conditions specific to the PFS Facility. Based on the applicant's evaluation, and the staff's evaluation as discussed in this SER, the staff finds that the HI-STORM 100 Cask System is acceptable for use at the Facility under the site-specific license provisions of 10 CFR Part 72.

1.1.4 Identification of Agents and Contractors

Section 1.5 of the SAR identifies the organizations responsible for providing the licensed spent fuel storage and transfer systems and engineering, design, licensing, and operation of the Facility. Holtec International is responsible for the design of the HI-STORM 100 Cask System. Stone & Webster Engineering Corporation is responsible for the design of the Facility. The applicant has overall responsibility for planning and design of the Facility using Stone & Webster Engineering Corporation as a contractor. The applicant is also responsible for the operation of the Facility and for providing quality assurance (QA) services.

The staff finds that Agents and contractors responsible for the design and operation of the installation have been identified.

1.1.5 Material Incorporated by Reference

Each chapter of the SAR includes a reference section that identifies documents referred to in that chapter.

The staff finds that material incorporated by reference, including topical reports and docketed material, has been appropriately identified in the SAR.

1.2 Evaluation Findings

The staff finds that the site and Facility descriptions presented in the SAR have sufficient detail to allow familiarization with the pertinent site-related features of the proposed ISFSI. All Open Items identified in the staff's previous SER for the Facility (Nuclear Regulatory Commission, 2000c) have been resolved. The staff finds that the SAR, in conjunction with the supporting documents referenced in the SAR, describes the ISFSI in sufficient detail to support the findings in 10 CFR 72.40. The staff also finds that the HI-STORM 100 Cask System, as described in the HI-STORM 100 FSAR, is acceptable for use at the Facility under the site-specific license provisions of 10 CFR Part 72.

1.3 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.* Effective Date May 31, 2000. Docket No. 72-1014.

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

Nuclear Regulatory Commission. 2000c. *Safety Evaluation Report of the Site-Related Aspects of the Private Fuel Storage Facility Independent Spent Fuel Storage Installation*. December 15, 1999 (revised and reissued January 4, 2000). Docket No. 72-22.

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.