



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

Enclosure 4

June 20, 2001

Mr. John D. Parkyn  
Chairman of the Board  
Private Fuel Storage, LLC  
3200 East Avenue South  
La Crosse, WI 54602-0817

**SUBJECT: ACCEPTANCE OF LICENSE APPLICATION AMENDMENT/  
SCHEDULE FOR SER SUPPLEMENT**

Dear Mr. Parkyn:

On March 30, 2001, Private Fuel Storage, LLC (PFS) submitted an amendment to its application for a license to construct and operate an away-from-reactor independent spent fuel storage installation on the Reservation of the Skull Valley Band of Goshute Indians. The amendment pertains to geotechnical aspects of the license application. The Nuclear Regulatory Commission (NRC) staff began its acceptance review of that amendment and determined that certain information, critical to the staff's completion of the review, was missing from that license application (LA) amendment. At a noticed public meeting with PFS in San Antonio, Texas on April 18, 2001, and in E. William Brach's May 7, 2001, letter to you, the NRC staff specified the additional information which had to be provided by PFS to complete its submittal of the LA amendment. The staff indicated that it could not undertake a complete review or determine a schedule to complete that review unless and until such information was provided. In a series of submittals culminating with the submittal dated May 31, 2001, PFS provided the additional information to the staff. Subsequently, the staff was able to complete its acceptance review of the LA amendment.

The NRC staff believes that PFS has addressed each missing item identified in the attachment to Mr. Brach's May 7, 2001, letter and therefore, the staff can continue its technical review of many parts of the LA amendment. However, the staff has also determined that, for the areas listed in Enclosure 1 to this letter, additional information and/or justifications are needed from PFS in order for the staff to conclude its technical review of the LA amendment. This information concerns the design of the storage pads and the foundation for the canister transfer building, as well as the engineered soil environments in which they will be placed. Assuming that PFS can provide the information identified in the Enclosure by July 20, 2001, and assuming that the staff will find it necessary to send one request for additional information (RAI) to PFS regarding the LA amendment, the following schedule will be implemented for the review of this LA amendment and production of a supplement to the Safety Evaluation Report (SER):

PFS Submits Information detailed in the Enclosure	July 20, 2001
Staff sends RAI to PFS	August 3, 2001
PFS Responds to RAI	September 18, 2001
Staff Completes Supplement to PFS SER	January 31, 2002

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The supplement to the PFS SER could be completed earlier, depending on the dates by which all information identified by the staff in the enclosure to this letter and in any subsequent RAI is submitted by PFS. Conversely, incomplete or inaccurate submittals would further impact the schedule and result in delays to the completion of the supplement to the SER and the remainder of the licensing process.

The staff intends to publish the Final Environmental Impact Statement (FEIS) when it issues the SER supplement. The schedule contained in this letter will be provided to the Atomic Safety and Licensing Board to use in planning and scheduling hearings in the ongoing adjudicatory proceeding.

The NRC staff is also in the process of reviewing a PFS LA amendment regarding aircraft crash hazards in the area of the proposed PFS facility. That amendment was submitted on January 19, 2001. However, additional information requested by the staff for its review of that LA amendment was received on June 1, 2001, after PFS was able gain access to the information from the U.S. Air Force through the provisions of the Freedom of Information Act. The staff believes that it can complete this review and include its conclusions in the proposed January 31, 2002, SER supplement. Should the staff complete this review significantly sooner, it will consider preparing a separate SER supplement presenting its evaluation of the LA amendment with respect to aircraft crash hazards.

If you have any questions about the information provided in this letter, please contact me at (301) 415-8518.

Sincerely,



Mark S. Delligatti, Acting Section Chief  
Spent Fuel Licensing Section  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

Enclosure: List of Missing Information

Docket No. 72-22

cc: PFS Service Lists  
Asadul Chowdhury, CNWRA  
Greg Zimmerman, ORNL

## **MISSING INFORMATION IDENTIFIED BY THE NRC STAFF DURING THE ACCEPTANCE REVIEW**

1. In the attachment to E. William Brach's May 7, 2001, letter to John D. Parkyn, the staff requested that PFS provide a "stand-alone" document discussing all of the changes being proposed in the LA amendment and summarizing the effect of the changes, with supporting bases, on the adequacy of the design. The NRC staff stated that this discussion should demonstrate that PFS considered the need to integrate all new and changed information into all appropriate parts of the license application.
  - PFS did not completely or adequately explain in the stand-alone document its reasons for changing the design of the storage pads or the foundation of the canister transfer building (CTB) and their engineered soil environments (including the soil cement), related to stability of these structures during an earthquake event.
2. The staff also requested that PFS provide revised analyses of the stability of the storage pads to include a clear identification of the potential failure modes and failure surfaces, and the material strengths required to satisfy the regulatory requirement, considering the critical failure modes.
  - The calculated seismic acceleration in Amendment 22 increased from approximately 0.53 g to 0.7 g. To accommodate this increase, PFS revised their soil foundation design and used a modified approach to demonstrate foundation stability. PFS previously relied only on friction forces between clay and soil-cement layers and passive resistance from soil cement surrounding the pad. The modified approach relies on assumed bonding forces between clay and soil cement layers, and between the pad and the soil cement layer to transfer shear to the underlying soil, and ensure stability during an earthquake event.

A fundamental assumption in the PFS approach is that sufficient bonding, and shear transfer between clay and soil cement interfaces could be achieved by unspecified "construction techniques." However, the staff had informed PFS on April 18, 2001, that PFS would have to identify these "construction techniques" and demonstrate that the assumed bonds can be developed and sustained through the period of regulatory concern. PFS did not provide this information.

- PFS identified shear failure through the "clayey" soils underneath the storage pads as the critical failure mode for stability against sliding during an earthquake event. The PFS analysis concluded that this was the critical failure mode based on the assumption that the shear strength at the other interfaces (pad/soil cement and soil cement/"clayey" soils) would be greater than the shear strength of the "clayey" soils. However, PFS did not adequately demonstrate the validity of this assumption.
- For the CTB, PFS relied on the passive resistance of soil cement without adequately considering processes that may reduce the amount of applicable passive resistance. Specifically, the analysis did not consider: (1) the impact of freeze-thaw cycles on the top layer of the soil cement; (2) the potential for tensile or shear failure along lift interfaces within the soil-cement layer; and (3) the need for a large pad displacement to induce the assumed passive resistance.

In order to demonstrate that the pad and CTB are stable during the design basis earthquake event, PFS needs to provide the information detailed above.