

RAS 10271

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# Private Fuel Storage Facility

Office of  
ADJUTANT GENERAL

~~PREPARED BY INFORMATION~~  
~~WITHHOLD FROM PUBLIC~~  
~~DISCLOSURE~~

General Project Description,  
Planned Construction Schedule  
and  
Proposed Environmental Permitting Needs

Draft Document

State's Exhibit  
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OFFICE OF THE SECRETARY  
ADJUDICATIONS STAFF

NUCLEAR REGULATORY COMMISSION

Case No. 72-22 Official Ex. No. 19  
In the matter of Private Fuel Storage  
Staff \_\_\_\_\_ IDENTIFIED X  
Applicant \_\_\_\_\_ RECEIVED X  
Intervenor X \_\_\_\_\_ REJECTED \_\_\_\_\_  
Casey Effr. \_\_\_\_\_  
Contractor \_\_\_\_\_ DATE 6-22-00  
Other \_\_\_\_\_ Witness Sheehan  
Reporter L. Shindurling

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Figure 2.1-2 Site & Access Road Location Plan (Sheets 1 and 2)

Figure 2.5-1 Watershed Basins in Vicinity of PFSF Site

Figure 3.1-1 PFSF General Arrangement

Table 3-1 Estimated Construction-Related Pollutant Emissions

Draft Environmental Permit Matrix

**i. General Description of the Private Fuel Storage Facility**

Private Fuel Storage L.L.C. will construct a facility for the temporary storage of spent nuclear fuel generated at commercial nuclear power plants within the United States. The spent fuel will be transported in Nuclear Regulatory Commission (NRC) approved shipping canisters, via a 32 mile long rail spur leading from the main Union Pacific rail line north and west of the Private Fuel Storage Facility (PFSF) at Low, Utah. Rail transportation will be the primary means of canister delivery; however, alternate canister transportation will be provided via truck from the Intermodal Transfer Point (ITP) that will be constructed north of the PFSF. The location of the PFSF is on the Skull Valley Band of Goshute Indian Reservation within the geographical boundaries of Toole County, Utah. The property is leased from the Band of Goshute Indians.

The spent nuclear fuel will be stored in cylindrical shaped concrete casks that are approximately 11 ft in diameter and 19 ft tall. The casks will be stored on concrete storage pads that will be arranged in a rectilinear grid pattern within the facility. Each storage pad is 30 feet wide and 64 feet long and can accommodate up to eight casks. At full capacity the facility will store 4000 casks (500 concrete pads).

**ii. Scope of construction**

Construction of the PFSF will take place on the Skull Valley Band of Goshute Indian Reservation and will involve the disturbance of approximately 164 acres. Major construction activities include the following:

- 1. Construction of a 2.5 mile long access road leading from the Skull Valley Highway to the PFSF (22 acres disturbed).**

The road will be 30-ft wide and will consist of crushed stone during the construction phase and will be topped with asphalt prior to placing the PFSF into service. The access road will be provided with multiple culverts beneath the road to accommodate storm runoff under the road. After the initial construction phase, the access road will be designed with two 15 foot paved lanes to facilitate the potential use of heavy haul tractor/trailer for shipment by highway of spent fuel from the Intermodal Transfer Point (ITP) to the PFSF. The preferred shipping method is by means of a new rail spur. The new 32 mile long rail spur will be constructed to connect the PFSF directly to the Union Pacific mainline. This spur will facilitate rail shipment of the spent fuel canisters.

- 2. Construction of the Restricted Area (RA), including a series of concrete storage pads arranged in a rectilinear grid pattern where the spent fuel casks will be stored (approximately 100 acres disturbed).**

The spent nuclear fuel will be stored in cylindrical shaped concrete casks that are approximately 11 ft in diameter and 19 ft tall. The casks will be stored on concrete storage pads that will be arranged in a rectilinear grid pattern within the facility. Each storage pad is 30 feet wide, 64 feet long and 3 feet thick and can accommodate up to eight casks. At full capacity the facility will store 4000 casks. The surface of the concrete storage pads will be 3.5 inches above grade elevation. The area around the storage pads is surfaced with compacted crushed rock with a gentle slope toward the north to facilitate drainage.

An additional 5-acre laydown area will be located south of the RA; this area will be reclaimed following construction.

- 3. Construction of a storm water retention basin to the north of the RA (8 acres).**

The retention basin pond will be excavated to a depth of approximately 5 feet deep over an area approximately 200 feet by 800 feet, and will be sited on the north side of the PFSF. This basin is the only significant excavation proposed for the PFSF, and it will have a design capacity to hold the volume of a 100-year storm event.

- 4. Construction of two earthen berms to divert storm water runoff (6 acres total).**

An earthen berm will be constructed along on the west and south sides of the RA to divert runoff from the Hickman Knolls Probable Maximum Flood (PMF) event. The berm will be five feet high, 50 feet wide and 4300 feet long. Another earthen berm will be located perpendicular to the access road approximately 750 feet east of the Owner Controlled Area (OCA) to divert runoff from the Stansbury Mountains PMF event. The berm is a maximum of nine feet high where it meets the access road and tapers down to meet the Hickman Knolls. The access road berm is a maximum of 64 feet wide at the base, and is 1900 feet long. The RA is provided with a gentle slope toward the north such that onsite storm runoff will flow into the storm water retention basin north of the RA.

**5. Construction of four (4) buildings including an Administration Building, a Health Physics Building, an Operation and Maintenance Building, and a Canister Transfer Building.**

The Administration Building, will be located at the entrance to the Owner Controlled Area, and will consist of a single story steel frame building approximately 80 feet wide, 150 feet long, and 17 feet tall.

The Operations and Maintenance Building will be located between the Administration Building and the storage area. It will be a single story steel frame building approximately 80 feet wide, 200 feet long and 26 feet tall.

The Security and Health Physics Building will be located at the entrance to the Restricted Area. It will consist of a single story concrete masonry building approximately 76 feet wide, 120 feet long, and 18 feet tall.

The Canister Transfer Building will be located within the Restricted Area. It will be a reinforced concrete high bay structure approximately 200 feet wide, 260 feet long, and 92 feet tall.

**6. Installation of lighting and construction of ancillary parking and access roads for each building.**

As part of construction, the driveways and parking areas around the facility buildings will be paved with asphalt or concrete. Native vegetation will be provided at the main entrance to the Administration Building. The facility, located more than 1.5 miles from the nearest public road, will have the appearance of a light industrial park. The lighting luminaries are selected to shine downward to minimize nighttime glare. Lighting will also be provided for the storage area.

**7. Construction of two (2) sanitary waste disposal systems. Two septic tank/leach field systems will be constructed at the PFSF. One system will serve the Administration Building and the Operations and Maintenance Building, and the second will serve the Canister Transfer and Health Physics Building (2 acres total). Total facility staffing is estimated to be 42 people, and both systems will have a design capacity to serve 20+ people.**

**8. Installation of nuisance fencing and security fencing around the RA, and a 20-ft wide compacted gravel perimeter road surrounding the RA.**

The RA is surrounded by an eight foot chain link security fence (w/ barbed wire), a 20 foot isolation zone and an eight foot chain link nuisance fence. A 20-foot wide compacted gravel perimeter road surrounds the RA. The

boundary of the OCA is surrounded by a typical range fence, consisting of wood posts and 3 horizontal strands of barbed wire.

**9. Installation of range fencing (barbed wire) around the 820 acre Owner Controlled Area (OCA).**

An area on the Indian Reservation encompassing 820 acres, designated as the Owner Controlled Area (OCA), will be bounded by typical range fencing (barbed wire) to identify the limits of the PFSF facility.

**10. Construction of the Low Corridor and Intermodal Transfer Point (ITP)**

Low Corridor: Additional ancillary construction activity outside of the Skull Valley Indian Reservation will include building a new rail spur, the preferred transportation method, that will connect the PFSF directly to the Union Pacific mainline railroad at Low, Utah. The rail spur will be approximately 32 miles long and will originate from the mainline on the south side of Interstate 80 at Low. From the mainline at Low, the rail spur will proceed southeast parallel to Interstate 80 for approximately 3 miles, then turn south along the western side of Skull Valley for approximately 26 miles, and then turn east for approximately 3 miles to the PFSF. The rail spur will consist of a single track installed on undeveloped public rangeland administered by the BLM. This rail spur will provide the primary means of canister delivery to the PFSF.

Construction activities will begin at Low Junction where excavation will be required to connect the new spur to the existing mainline railroad and to provide the required sidings. The existing grades are elevated where the railroad and interstate highway cross the north end of the Cedar Mountains. The mainline is depressed beneath the two I-80 overpasses at Low Junction. The excavated soils will be stockpiled for use as fill for rail spur construction in Skull Valley.

Construction of the new rail spur will begin in September 2000 and will be completed by December 31, 2001 to support testing and startup of the PFSF.

Intermodal Transfer Point (ITP): The ITP will be constructed 1.8 miles west of the intersection of Interstate highway 80 and Skull Valley Road at the mainline Union Pacific Railroad approximately 24 miles north of the PFSF. The ITP will have a short rail siding and a pre-engineered metal building, which will house a gantry crane for cask transfer. An access road will be provided to connect the ITP to the frontage road that runs along the north side of Interstate Highway 80. The ITP will provide a means to transfer canisters from rail car to trucks as an alternate means of

canister delivery to the PFSF. The ITP building will be a pre-engineered metal building approximately 80-ft. wide by 100-ft. long and 54-ft. high. The access road will be an asphalt-paved private road approximately 30-ft wide and 400-ft. long.

The ITP will be constructed between January 1 and December 31, 2001 to support testing and startup of the PFSF.

### III. PFSF Construction Schedule

#### Phase 1 - September 1, 2000 to December 31, 2001

The initial construction period (Phase 1) will consist of three parts. Part 1 will include construction of the site access road, the access road flood diversion berm, and initial grading and excavation for the Administration Building and the Operation and Maintenance Building. These activities will begin about September 1, 2000, and be completed about October 31, 2000 (approximately 40 working days).

During the second part of Phase 1 (November 1, 2000 to May 31, 2001), the storage facility will be leveled to final grade. Additional construction activities will include construction of the first half of the concrete storage pads in the south-east quadrant, the site flood diversion berm and storm retention basin, the Canister Transfer Building, and the Security and Health Physics Building.

During the third part of Phase 1 (June 1, 2001 to March 1, 2002), the Administration Building and the Operation and Maintenance Building will be completed as well as the remaining concrete storage pads in the southeast quadrant.

The objective of Phase 1 is to provide an operational facility with a portion (25%) of the storage pads completed. Phase 1 construction will include completion of the Canister Transfer Building, the Security and Health Physics Building, one quarter of the storage pads (130 total) located in the southeast quadrant of the RA, the Administration Building, and the Operations and Maintenance (O&M) Building. The southwest quadrant will be rough graded. The storm water retention basin and PMF diversion berm on the south and west sides of the RA will also be constructed. The site drainage from the southeast and southwest quadrants will be channeled to the retention basin by means of a rockfill ditch. Yard lighting, duct banks, grounding, security fences, perimeter intrusion detection system and perimeter road will be completed for the southeast quadrant. Phase 1 construction will be completed by December 31, 2001 with the exception of the Administration Building, and the Operations and

Maintenance (O&M) Building, which will be completed by March 1, 2002. (These buildings are not required to support the initial testing and startup of the storage facility).

### **Construction Phase 2**

During Phase 2, the southwest quadrant of the storage facility will be constructed.

The objective of Phase 2 is to provide additional storage capacity to the operating facility by adding the second 25 percent of the storage pads. Construction in the southwest quadrant (Phase 2) will be performed while the storage pads in the southeast quadrant are being loaded with casks, and will be completed before all of the Phase 1 casks are in-place. When all of the pads are constructed in the southwest quadrant, the Phase 1 security fence, perimeter road, and perimeter intrusion detection systems will be extended to include the Phase 2 area. Phase 2 construction is tentatively planned for completion by November 30, 2011.

### **Construction Phase 3**

During Phase 3, the remainder of the storage facility (i.e. the two northern quadrants) will be constructed.

The objective of Phase 3 is to provide additional storage capacity to the operating facility by completing the remaining 50 percent of the storage pads. Construction of the northern half of the RA (Phase 3) will be performed while the Phase 2 (southwest quadrant) pads are being loaded with casks, and will be completed before all of the Phase 2 casks are in-place. When all of the pads are constructed in the northern half of the RA, the security fence, perimeter road, and perimeter intrusion detection systems will be extended to include this area. Phase 3 construction is tentatively planned for completion by November 30, 2021.

## **IV. Construction Equipment**

Construction equipment used during the three construction phases will consist of scrapers, bulldozers, dump trucks, compactors, graders, front-end loaders, cement trucks, backhoes, a crane, a concrete batch plant, an asphalt batch plant, an asphalt paver, a fence-post driver, and possibly a well drilling rig.

A portable, concrete batch plant will be located at the PFSF through the completion of Phase 3 to provide concrete for construction of the storage pads and casks.