UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
PRIVATE FUEL STORAGE L.L.C.	)	Docket No. 72-22
	)	
(Private Fuel Storage Facility)	)	

AFFIDAVIT OF JERRY COOPER

CITY OF ENGLEWOOD	)	
	)	SS:
STATE OF COLORADO	)	

I, Jerry Cooper, being duly sworn, state as follows:

1. I am the Project Engineer with Stone & Webster Engineering Corporation (Stone & Webster) for the Private Fuel Storage Facility (PFSF). Stone & Webster is the architect-engineer for the PFSF. As Project Engineer for the PFSF, I am responsible for directing the multidiscipline engineering and design activities of the PFSF project. I am providing this affidavit in support of a motion for partial summary disposition of Contention Utah K in the above captioned proceeding to describe the ability of the PFSF to withstand heat and temperatures under conditions that might result from a wildfire adjacent to the facility.

2. I have participated in and am knowledgeable of the design and layout of the PFSF. My professional and educational experience is summarized in the curriculum vitae attached as Exhibit 1 to this affidavit. I have 28 years of experience in the engineering, design, construction, operation, and maintenance of naval nuclear power plants,

commercial nuclear plants, spent fuel storage facilities, and environmental remediation projects.

3. All spent fuel at the PFSF will be located inside the Restricted Area. The Restricted Area is a 99 acre, roughly rectangular area surrounded by two fences, which will contain the concrete storage pads on which the spent fuel storage casks will be located (8 casks per pad). The Restricted Area will also contain the canister transfer building, constructed of reinforced concrete, where the spent fuel canisters will be transferred from transportation casks to storage casks. The transportation casks containing the canisters will be brought into the canister transfer building from outside the ISFSI either on rail cars (via the PFSF rail line) or heavy-haul tractor trailers (via the PFSF access road). Finally, in a corner of the Restricted Area, removed from the canister transfer building and spent fuel storage casks, will be the security and health physics building, constructed of reinforced concrete masonry, which will contain the offices and equipment for security and health physics personnel and an emergency diesel generator.

4. The layout of the PFSF Restricted Area is shown in Figure 1.2-1 of the PFSF Safety Analysis Report (SAR), which is attached as Exhibit 2 to this affidavit. As can be seen on this Figure, the concrete storage pads and the spent fuel storage casks will be separated from the inner fence surrounding the Restricted Area by a minimum distance of 150 ft. That portion of the Restricted Area not covered by the concrete pads will have a crushed rock surface 12 inches deep. The inner fence is separated from the outer fence by a distance of 20 ft. The area between the fences (referred to as the isolation zone on Figure 1.2-1), will have a crushed rock surface 12 inches deep. Surrounding the outer fence, at a distance of 10 ft. from the fence, will be a 20-foot wide perimeter road with a crushed rock surface 12 inches deep. (While SAR Figure 1.2-1 refers to the Restricted Area and perimeter road surfaces as "crushed rock" and the isolation zone surface as "compacted gravel," those surfaces will all be composed of the same aggregate road base.) The 10 ft. space between the outer fence and the perimeter road will also have a 12-inch deep crushed rock surface. PFS will implement a maintenance program to con-

trol any significant growth of vegetation through the crushed rock surface of the Restricted Area, the isolation zone, the 10 ft. space between the isolation zone and the perimeter road, and the perimeter road. Thus, the surface of the Restricted Area from the concrete pads to the outside of the perimeter road will be non-combustible.

5. I have read the affidavit of Carlton Britton. In addition to the surface of the Restricted Area being non-combustible, the spent fuel, the equipment, and the PFSF personnel inside the Restricted Area will be protected from wildfires by a barrier of crested wheat grass that PFSF will plant around the Restricted Area. The barrier will be 300 ft. wide and will run outward from the outer edge of the perimeter road around the Restricted Area. A barrier of crested wheat grass would remain in place with little maintenance after it was planted. Britton Aff. at ¶ 8. Crested wheat grass is fire resistant and thus would eliminate or greatly reduce the effect of any wildfire approaching the PFSF. Id.

6. The closest possible point of approach of a wildfire outside the Restricted Area, assuming that it penetrated the barrier of crested wheat grass around the Restricted Area, would be the closest total distance from the outer edge of the perimeter road surrounding the Restricted Area to a spent fuel storage cask or a structure used to handle spent fuel storage casks. Thus, the closest possible point of approach to any spent fuel storage casks inside the Restricted Area would be 162 ft., to any casks in the canister transfer building. The spent fuel storage casks on the concrete storage pads would be at least 200 ft. from the outer edge of the road and thus at least 200 ft. from the fire. See SAR Fig. 1.2-1, Exhibit 2.

7. The canister transfer building will have concrete walls two feet thick, with a concrete roof one foot thick and a concrete foundation five feet thick. Response to NRC Request for Additional Information 3-5, at 1, dated Mar. 24, 1999. Thus it will be non-combustible and because of the low thermal conductivity and high specific heat of concrete, no fire outside the Restricted Area would pose a hazard to the building or to any

spent fuel, fuel casks, fuel canisters, or personnel located inside the canister transfer building.

8. I have also read the affidavits of Krishna Singh, and Ram Srinivasan. The distance from the closest possible point of approach of a wildfire, combined with the temperatures generated by a fire, Britton Aff. at ¶¶ 6-7, 9-10, and the resistance to fire of the spent fuel casks systems, Singh Aff. at ¶ 7; Srinivasan Aff. at ¶¶ 5-6, and the canister transfer building, would prevent a wildfire from posing a hazard to the spent fuel, the fuel canisters, or the fuel casks.

9. The only significant sources of combustible material that would be present inside the Restricted Area would be: 1) the diesel fuel in the tanks of any heavy haul trucks bringing spent fuel transportation casks to the ISFSI, SAR § 8.2.5.1.; 2) the diesel fuel in the tanks of any train locomotive bringing transportation casks to the ISFSI, SAR § 8.2.5.1; 3) the diesel fuel in the cask transporter vehicle that would move casks from the canister transfer building to the storage pads, SAR § 8.2.5.1.; 4) the diesel generator fuel tank inside the security and health physics building; and 5) the diesel fuel storage tank, which would be located at least 50 ft. inside the inner fence surrounding the Restricted Area, approximately 200 ft. northeast of the canister transfer building and 700 ft. east of the nearest fuel casks. Commitment Resolution Information, NRC RAI 8-2 (second round), dated Mar. 24, 1999.

10. A wildfire would not cause any of the fuel sources inside the Restricted Area to ignite or explode. The diesel tanks will be designed in accordance with the requirements of NFPA 30. The diesel storage tank will be located at least 50 ft. inside the inner fence around the Restricted Area, which would provide a 100 ft. firebreak between the outer edge of the perimeter road and the tank. The crested wheat grass barrier around the Restricted Area would provide another 300 ft. of separation between the fire and the tank. At that distance a fire would have no chance whatsoever of igniting or exploding the diesel fuel in the tank. Britton Aff. at ¶ 10. The diesel emergency generator tank will be a double-walled tank located inside the security and health physics building. The

building will be protected by the crested wheat grass barrier. Furthermore, even if the fire were to penetrate the crested wheat grass barrier, because the area between the outer edge of the Restricted Area and the outer edge of the perimeter road are covered with crushed rock, a wildfire could not come closer than 50 ft. from the building. In addition, the tank will be protected from fire by the building, by virtue of its of reinforced concrete masonry construction, by a sprinkler system within the building designed to NFPA 13 standards, and by the tank's own double-walled construction. Therefore, a wildfire would not ignite or explode the diesel generator tank. All other diesel fuel sources would be farther than 100 ft. from any wildfire (assuming that it penetrated the crested wheat grass barrier around the Restricted Area) and would not be threatened by virtue of their distance from the fire.

11. Further, PFS has analyzed the potential consequences of diesel fuel fires and has found that they would pose no hazard to the spent fuel or the integrity of the spent fuel storage casks or the fuel canisters contained therein, even if the diesel fuel were somehow ignited. Section 8.2.5 of the PFSF SAR shows that fires involving diesel fuel from a heavy haul truck, the cask transporter vehicle, or the locomotive would not threaten the integrity of the spent fuel storage casks (or the fuel canisters inside). Diesel fires (and wildfires) would not threaten the integrity of any spent fuel transportation casks (or canisters contained therein), in that under 10 C.F.R. § 71.73(c)(4), certified transportation casks are required to be designed to withstand a design basis fire. The explosion of vehicle fuel tanks is not a credible event because of the distance that would separate them from any wildfire. Britton Aff. at ¶ 10.

12. A fire involving the diesel fuel from the storage tank northeast of the canister transfer building would not threaten any spent fuel storage casks or canisters contained therein, in that the tank will be 700 ft. from the nearest concrete storage pad and 200 ft. from the canister transfer building. The explosion of the diesel storage tank is not credible because of the distance that would separate it from any wildfire. A fire or explosion involving the diesel fuel from the diesel generator tank inside the security and health

physics building would not threaten any spent fuel storage casks (or canisters inside), in that the security and health physics building is over 900 ft. from the nearest concrete storage pad and over 350 ft. from the canister transfer building. Commitment Resolution Information, NRC RAI 8-2 (second round), dated Mar. 24, 1999.

13. Any hazard that a wildfire might pose to any other structure or piece of equipment around or inside the Restricted Area is irrelevant, in that section 3.4 and Table 3.4-1 of the PFS SAR show that the fuel casks, the fuel canisters, the storage pads, and the canister transfer building (including components inside the building) are the only "structures, systems, and components important to safety" (defined by 10 C.F.R. § 72.3) at the PFSF. The NRC defines as such those systems that 1) maintain the conditions required to store spent fuel safely, 2) prevent damage to the spent fuel container during handling and storage, and 3) provide reasonable assurance that the spent fuel can be handled without undue risk to the public. Specifically, the security and health physics building and the security and perimeter lighting systems are not "important to safety." Nor are any aspects of the PFSF electrical power supply or instrumentation systems. Those systems provide for the safety of the PFSF only indirectly. The PFSF is designed so that no harm to the public health and safety would result from the failure of those systems. If those systems were damaged by a fire, PFS would simply repair or replace them afterwards. NRC regulations do not require a higher level of protection for those systems.

14. Finally, a wildfire at the PFSF would not cause the evacuation of PFSF security personnel. By virtue of the 300-ft. crested wheat grass barrier surrounding the PFSF Restricted Area and the distance between the outer edge of the perimeter road around the Restricted Area and the location of the spent fuel storage casks and the canister transfer building, the heat from the fire would not pose a threat to any personnel inside the Restricted Area. Britton Aff. at ¶ 10. Furthermore, PFSF security personnel will have appropriate emergency breathing apparatus available to them such that the smoke

from a fire at the PFSF would not force them to evacuate. The spent fuel casks inside the PFSF Restricted Area will be protected by PFSF security personnel at all times.

Jerry Cooper

Sworn to before me this 7th day of June 1999.

Joanne G. Moon
Notary Public

My Commission expires 4-21-2003

JOANNE G. MOON
NOTARY PUBLIC
STATE OF COLORADO
My Commission Expires 04/21/2003