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)	)	

DECLARATION OF JEFFREY JOHNS

Jeffrey Johns states as follows under penalties of perjury:

1. I am a Licensing Engineer for Stone & Webster Engineering Corp. I am providing this declaration in support of a motion for partial summary disposition of Contention Utah K in the above captioned proceeding to show that smoke from a distant fire or explosion, including smoke from the Tekoi Rocket Engine Test Facility, would pose no significant hazard to the Private Fuel Storage Facility (PFSF).

2. My professional and educational experience is summarized in the curriculum vitae attached as Exhibit 1 to this declaration. I have 21 years of experience in the nuclear power industry and nine years of experience with the licensing of independent spent fuel storage installations (ISFSIs). I have experience in performing accident analyses for nuclear power plants and ISFSIs and in preparing ISFSI emergency plans. For the PFS project I am responsible for the preparation of the PFS Safety Analysis Report, including accident analysis and radiation protection for the spent fuel cask systems to be used at the PFSF. As part of my responsibilities I have performed estimates of the dispersion of plumes of radioactive material in air after a release.

3. I am knowledgeable of the design and operation of the PFSF and the spent fuel casks that will be used there. I am knowledgeable of the means of projecting the propagation of smoke plumes through the atmosphere under different environmental conditions and I am knowledgeable of the effect of such propagation on the size and density of the plumes. I am also familiar with the relative locations of the PFSF and the Tekoi test facility.

4. In its response to Private Fuel Storage L.L.C.'s (PFS) first discovery request, the State of Utah alleged that the function of the PFSF could be impaired by a smoke plume potentially created by a fire or explosion at the Tekoi Rocket Engine Test Facility. The State had alleged in Utah K that PFS had inadequately considered the impact on the PFSF of credible accidents at other facilities in the region, including potential rocket motor explosions at Tekoi.

5. The Tekoi test facility is owned by Alliant Techsystems, Inc. and is located on the Skull Valley Band of Goshute Indian Reservation. Tekoi encompasses two operational areas: a high hazard explosive test area and a static test range. The static test range includes three test bays. The PFSF is located over two miles from the Tekoi test facility. Specifically, the closest part of the PFSF Restricted Area, in which the spent fuel casks and all systems important to safety at the PFSF will be located, is 2.3 miles (12,100 ft.) north by northwest of the Tekoi test bay in which the largest rocket motors are tested. That bay is the location closest to the PFSF at which explosives or rocket motors are tested at Tekoi.

6. Because of the distance between the PFSF and Tekoi, smoke released from testing rocket motors or from rocket motor detonations at Tekoi would not pose a significant hazard to the PFSF. The Environmental Impact Analysis performed for Tekoi indicated that a rocket motor would burn for approximately 70 seconds during a test and would emit "a cloud of non-toxic smoke and dust." Bureau of Indian Affairs, Uintah and Ouray Agency, Environmental Impact Analysis, Rocket Motor Test Site, Skull Valley Band of Goshute Indians, Skull Valley Reservation (Mar. 28, 1975), at 4. It stated

further, however, that "there will be no effect on . . . air quality with an accidental detonation" and that "essentially the same air pollutants and quantities will be released during an accidental detonation, compared to routine operating conditions, [thus] the effects will be basically the same." Id. at 10. Thus, even at the Tekoi site, smoke and dust emissions associated with a rocket test or detonation would not be significant.

7. Furthermore, any smoke plume from Tekoi would be greatly diluted by the time it reaches the PFSF Restricted Area, 2.3 miles away. Calculations indicate that the density of smoke or concentration of particulates in air would be over 150 times lower at a range of 2 miles from the burn site than at a range of 150 meters from the burn site. PFS performed the calculations comparing χ/Q plume dispersion factors for a range of 150 meters from the point of origin to dispersion factors for a range of 2 miles (3,219 meters) from the point of origin, with the dispersion factors calculated in accordance with NRC Regulatory Guide 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants," (Revision 1, Nov. 1982). PFS conservatively assumed atmospheric conditions most conducive to maintaining a concentrated smoke plume at a distance from the burn site: atmospheric stability class F, wind speed of 1.0 meter/sec and no plume meander. Furthermore, the dilution between the Tekoi test facility and the PFSF would be significantly greater than that calculated due to the greater distance from Tekoi to the PFSF (2.3 miles vs. 2 miles) and the intervening Hickman Knolls, which would cause greater dispersion of the smoke in air traveling from Tekoi toward PFSF. Based on these calculations, smoke density at the PFSF from rocket motor testing or testing accidents at the Tekoi test facility would be negligible.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June __, 1999.

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Jeffrey Johns

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EXHIBIT 1