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**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

OFFICE OF THE SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

In the Matter of	)	
	)	
PRIVATE FUEL STORAGE L.L.C.	)	Docket No. 72-22
	)	
(Private Fuel Storage Facility)	)	ASLBP No. 97-732-02-ISFSI

**APPLICANT’S MOTION TO STRIKE PORTIONS OF STATE OF UTAH’S  
PREFILED TESTIMONY OF DR. MARVIN RESNIKOFF REGARDING  
UTAH CONTENTION K/CONFEDERATED TRIBES CONTENTION B**

Applicant Private Fuel Storage L.L.C. (“Applicant” or “PFS”) hereby moves to strike portions of the State of Utah’s (“State’s”) Prefiled Testimony of Dr. Marvin Resnikoff Regarding Utah Contention K/Confederated Tribes Contention B (“Utah K”), dated February 19, 2002 (“Dr. Resnikoff’s Testimony”). Applicant moves to strike on the grounds that portions of Dr. Resnikoff’s Testimony 1) are not reliable, 2) are irrelevant to Utah K, and 3) contradict a prior Atomic Safety and Licensing Board (“Licensing Board” or “Board”) holding.

**I. BACKGROUND**

Contention Utah K concerns credible accidents that allegedly threaten the Private Fuel Storage Facility (“PFSF”), including accidents arising from military aircraft crashes. See LBP-99-39, 50 NRC 232, 236-38 (1999). On May 31, 2001, the Board granted in part and denied in part PFS’s motion for summary disposition of Utah K. LBP-01-19, 53 NRC 416 (2001). The decision resolved several issues in favor of PFS, including the hazards posed by commercial and general aviation. Specifically, the Board ruled that the hazard from general aviation was negligible. Id. at 451-2. The Board left for hearing only the issues of aircraft accident hazards from (a) F-16 transits of Skull Valley, (b) jet-tisoned military ordnance, (c) air-to-air combat training on the Utah Test and Training

Range, (d) military flights on the Moser Recovery Route, and (e) military flights to and from Michael Army Airfield on IR-420. Id. at 455-6. In addition, the Board referred to the Commission its ruling that the PFSF need only be designed to withstand accidents with a probability of at least one-in-a-million per year. Id. at 431. On November 14, 2001, the Commission affirmed the Board's ruling that the PFSF need not be designed to withstand aircraft crashes having less than a one-in-a-million annual probability of occurring and stated that the hearing should proceed on the remaining fact issues as specified in the Board order. CLI-01-22, 54 NRC 255 (2001).

On February 19, 2002, the State filed Dr. Resnikoff's Testimony in which Dr. Resnikoff asserted, in part, that the radiological consequences of an aircraft or ordnance impact at the PFSF ranges from 70 to 3,300 rems. Dr. Resnikoff's Testimony at p. 27. Dr. Resnikoff also asserts that the probability of a General Aviation crash is  $2.36 \times 10^{-7}$  in his calculation of the cumulative aircraft crash impact probability. Id. at p.21.

## **II. DISCUSSION**

### **A. Motions to Strike**

A licensing board may strike any portion of prepared testimony, on motion or its own initiative, that is cumulative, irrelevant, immaterial, or unreliable. See, e.g., 10 C.F.R. §§ 2.718(c) and (e), 2.743(c) (a board has authority to regulate the conduct of the proceeding and to exclude irrelevant evidence); see also Rockwell International Corp. (Rocketdyne Div.), LBP-90-10, 31 NRC 293, 298 (1990). The portions of Dr. Resnikoff's Testimony related to the potential consequences of aircraft crashes are not probative and are irrelevant to determining the probability of such a crash occurring. Also, continuing to include hazards from General Aviation in the cumulative aircraft crash probability contrary to the Board's prior ruling on General Aviation would allow litigation on an issue that PFS has already received favorable disposition. Therefore, Dr. Resnikoff's Testimony on those points should be stricken.

**B. Dr. Resnikoff's Prefiled Testimony Contains Material that Should Be Stricken as Unreliable**

The issues set for hearing on Utah K are limited to the State challenges to PFS's estimate of the hazards from aircraft crashes to the PFSF. LBP-01-19, 53 NRC at 455-6. Expert testimony is limited to that in which its probative value outweighs its potential for confusion or delay.<sup>1</sup> Probative expert testimony is that which is helpful to the fact-finder and reliable. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 592 (1993).

The Licensing Board, as affirmed by the Commission, found that the accident consequences at an ISFSI would be more like those at a Geologic Repository Operations Area (GROA) than a nuclear reactor. LBP-01-19, 53 NRC at 431. In affirming the Board, the Commission dismissed as not probative Dr. Resnikoff's declaration "that a worst-case scenario resulting from an aircraft crash could result in doses that are significantly larger than those estimated in the bounding consequences analysis for Category 2 design basis events at a GROA," explaining:

However, the affidavit does not explain the input assumptions used to determine the dose, nor does it discuss the physical differences between a reactor and the GROA. Because any dose analysis is highly dependent on input assumptions and because the physical nature of the facilities suggests that the consequences of an accident at an ISFSI are far more similar to those that might result from an accident at a GROA than one at a reactor, the affidavit is not sufficiently probative.

CLI-01-22, NRC at 265 n. 42.

Dr. Resnikoff's Testimony, at § IX.C, Q47 & A47, pp. 25-27, and associated State Exhibits 83 and 84, repeat the same dose analysis contained in his declaration of January 31, 2001 that was found unreliable by the Commission and still does not explain all of the input data and assumptions underpinning the analysis. A determination of reli-

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<sup>1</sup> See e.g., Duke Power Company (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 475-78 (1982) (upholding the exclusion of expert's testimony and associated documents as unreliable, irrelevant, or repetitious).

ability focuses on the methodology and principles behind the testimony. Daubert, 509 U.S. at 595. The methodology and principles used by Dr. Resnikoff to determine accident dose consequences remain obscure. Thus, it is impossible to determine the validity of Dr. Resnikoff's analysis in the first instance or to reliably compare it to any other analyses of accident dose consequences. For the same reason that the Commission dismissed the analysis as not sufficiently probative, pp 25-27 of Dr. Resnikoff's Testimony should be excluded here as unreliable.

Further, where the expert reaches a conclusion that other experts in the field would not, it is reasonable to conclude the expert's methodology and principles have not been faithfully applied. Lust v. Merrill Dow Pharamceuticals, Inc., 89 F.3d 594, 598 (9<sup>th</sup> Cir. 1996). Dr. Resnikoff's Testimony concludes that the radiation dose consequences of aircraft or ordnance impact at the PFSF ranges from 70 to 3,300 rems. The Commission found that the bounding GROA accident radiation dose consequences were roughly 20 rems. CLI-01-22, 54 NRC at 261. The State's failure<sup>2</sup> to provide the supporting data for Dr. Resnikoff's Testimony and the significant difference between Dr. Resnikoff's conclusion (consequences of up to 3,300 rems) and the Commission's conclusion (consequences no more than about 20 rems) makes it reasonable to conclude that Dr. Resnikoff's Testimony is unreliable.

Any flawed step in the expert's chain of reasoning that renders the analysis unreliable also renders the testimony inadmissible. In re Paoli R. R. Yard PCB Litigation, 35 F.3d 717, 745 (3d Cir. 1994). Here, Dr. Resnikoff's Testimony assumes as part of his radioactive source term that 100% fuel rod failure occurs due to the impact of an inert bomb on a spent fuel storage cask. He assumes—with absolutely no support—a decel-

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<sup>2</sup> The State has not provided any material on Dr. Resnikoff's dose consequences of an accident from an inert bomb impact on a cask at the PFSF in discovery responses.

eration rate for (and resultant force on) the inert bomb resulting from its impact against the wall of the cask. He then simply compares this deceleration rate to the design acceleration (i.e., g-force) limit of the fuel rods. Even if Dr. Resnikoff's assumption about the deceleration felt by the inert bomb as a result of the impact is correct, it is simply not credible that the acceleration felt by the contents of the cask (i.e., the fuel rods) is equal to the deceleration felt by the inert bomb at impact. First, the cask is nearly 200 times more massive than the inert bomb and thus, based on basic principles of physics, the acceleration felt by the cask after impact would be only one two-hundredth of the deceleration felt by the bomb on impact. Second, even everyday experience rebuts such a simplistic assumption. An accident in which a car knocks over a mail box and crushes its bumper in the process does not result in the same crushing forces of deceleration being felt by the car's occupants. Therefore, Dr. Resnikoff's Testimony should be stricken as unreliable.

**C. Dr. Resnikoff's Testimony On Radiation Dose Consequences of a Beyond-Design-Basis Accident Should Be Stricken as Irrelevant**

Under NRC regulations governing testimony at hearings, "[o]nly relevant, material, and reliable evidence which is not unduly repetitious will be admitted. Immaterial or irrelevant parts of an [otherwise] admissible document will be segregated and excluded so far as is practicable." 10 C.F.R. § 2.743(c).

The issue for this hearing is whether the probability of an aircraft crash or jettisoned ordnance is sufficiently low that it need not be considered in the design of the PFSF. See LBP-01-19, 53 NRC at 429-31 and n. 4. Dr. Resnikoff addresses the radiological consequences that would allegedly result from a piece of jettisoned ordnance striking and penetrating a spent fuel storage cask at the PFSF. Dr. Resnikoff's Testimony § IX.C, Q47 & A47, pp. 25-27 and associated State Exhibits 83 and 84. It is a complex analysis, full of assumptions unrelated to the issue at hand. It will only serve to add confusion, distraction, and delay to the determination of the probability of an aircraft crash.

The Board found Dr. Resnikoff's declaration on radiation dose consequences to be irrelevant to its ruling on PFS's motion for summary disposition. LBP-01-19, 53 NRC at 431 n. 4. Furthermore, the Commission held that the design basis accident probability threshold for ISFSI's is  $10^{-6}$  per year, independent of any purported site-specific or accident-specific dose consequence claims. CLI-01-22, 54 NRC at 265-6. Therefore, Dr. Resnikoff's radiation dose consequences testimony and the cited exhibits related to it should be stricken as irrelevant to Utah K.

**D. Dr. Resnikoff's Prefiled Testimony On General Aviation Crash Hazards Should Be Stricken as Contradicting a Prior Ruling of the Board**

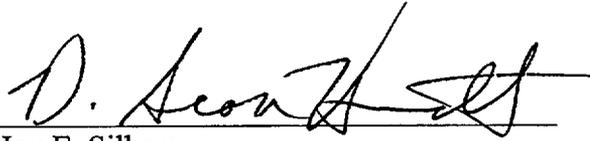
Contrary to the prior ruling of the Licensing Board, Dr. Resnikoff's Testimony includes a probability of a General Aviation crash of  $2.36 \times 10^{-7}$  per year in his calculation of the cumulative aircraft crash probability. Dr. Resnikoff's Testimony § VIII, A39, Table 5 at p.21 and State Exhibit 81. In granting summary disposition as to the hazards posed by General Aviation, the Board found there was no dispute regarding any of the PFS material factual statements relating to General Aviation. LBP-01-19, 53 NRC at 452. The PFS material facts on General Aviation stated, "Because of the negligible traffic level and the fact that an aircraft impact would not penetrate a spent fuel storage cask, the hazard to the PFSF from general aviation impacts is negligible." Applicant's Motion for Summary Disposition of Utah K, Statement of Material Facts ¶ 64, December 30, 2000; see LBP-01-19, 53 NRC at 451 (General Aviation hazard is practically zero). PFS has received favorable disposition on this issue. Dr. Resnikoff's Testimony is directly contrary to the ruling of the Board. The line items in Dr. Resnikoff's Testimony and State Exhibit 81 on General Aviation should therefore be stricken.

**III. CONCLUSION**

For the foregoing reasons, PFS respectfully requests the Board to strike the portions of Dr. Resnikoff's Testimony on radiation dose consequences (§ IX.C (Q47 & A47,

pp. 25-27) and associated Utah Exhibits 83 and 84) and the line items on General Aviation (§ VIII (A39, Table 5, p. 21) and State Exhibit 81).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "D. Sean Barnett", written over a horizontal line.

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Dated: March 25, 2002

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION**

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**CERTIFICATE OF SERVICE**

I hereby certify that copies of the "Applicant's Motion to Strike Portions of State of Utah's Prefiled Testimony of Dr. Marvin Resnikoff Regarding Utah Contention K/Confederated Tribes Contention B" were served on the persons listed below (unless otherwise noted) by e-mail with conforming copies by U.S. mail, first class, postage pre-paid, this 25<sup>th</sup> day of March, 2002.

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