

July 22, 1999

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 )  
PRIVATE FUEL STORAGE, LLC ) Docket No. 72-22-ISFSI  
 )  
(Independent Spent )  
Fuel Storage Installation) )

NRC STAFF'S RESPONSE TO APPLICANT'S MOTION  
FOR PARTIAL SUMMARY DISPOSITION OF  
UTAH CONTENTION K AND CONFEDERATED TRIBES CONTENTION B

INTRODUCTION

Pursuant to the Atomic Safety and Licensing Board's "Order (Granting Time Extension Motion Regarding Summary Disposition Filing for Contentions Utah B and Utah K/Confederated Tribes B)" (Order), dated June 23, 1999 and 10 C.F.R. § 2.749(a), the staff of the Nuclear Regulatory Commission (Staff) hereby files its response to the "Applicant's Motion For Partial Summary Disposition of Utah Contention K and Confederated Tribes Contention B," (Motion) filed June 7, 1999, by Private Fuel Storage, L.L.C. (Applicant).

For the reasons set forth below and in the attached affidavits of Amitava Ghosh, Jack Guttmann, and Paul Lain, the Staff submits that issues pertaining to the consideration of credible accidents, with the exception of military aircraft crashes, have been resolved, and there no longer exists a genuine dispute of material fact with respect to those aspects of Utah Contention K and Confederated Tribes Contention B. Inasmuch as these issues have been resolved, the Applicant is entitled to a decision in its favor on these issues as a matter of law. The Staff therefore

supports the Applicant's Motion (except as it relates to military aircraft crashes, as to which the Staff expresses no position at this time), and recommends that it be granted.

### BACKGROUND

Utah Contention K ("Inadequate Consideration of Credible Accidents") and Confederated Tribes Contention B ("Lack of Protection Against Worst Case Accidents") were admitted by the Board in its initial ruling on contentions. See *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 190-191, 234-235 (1998). The Board limited the State's contention to the impact on the ISFSI of accidents involving materials or activities emanating from: the Tekoi Rocket Engine Test facility, Dugway Proving Ground, Salt Lake City International Airport, Hill Air Force Base, and the Utah Test and Training Range (UTTR). The Board also admitted the State's issues pertaining to the Rowley Junction intermodal transfer point (ITP). *Id.* at 190. Regarding the Confederated Tribes' contention, the Board limited the contention to its discussion of wildfires. *Id.* at 234-35. The Board then consolidated these contentions. *Id.* at 235. The combined contention, as admitted by the Board, states:

The Applicant has inadequately considered credible accidents caused by external events and facilities affecting the ISFSI and the intermodal transfer site, including the cumulative effects of the nearby hazardous waste and military testing facilities in the vicinity and the effects of wildfires.

*Id.* at 253.

In its Motion, the Applicant sought partial summary disposition with respect to all portions of the contention, other than ITP-related issues. Motion at 2, and n.2. The Applicant based its motion on the grounds that no genuine issue of material fact exists regarding the potential for the

listed facilities in the area or wildfires to cause credible accidents at the ISFSI resulting in radioactive releases in excess of regulatory limits. *Id.* at 2.

On June 15, 1999, the Staff filed a statement of its position concerning Group I contentions in this proceeding, including contention Utah K/Confederated Tribes B.<sup>1</sup> As set forth therein, the Staff concluded that none of the matters listed in this contention posed a credible hazard for the Applicant's proposed ISFSI facility -- except for (a) commercial and military aircraft crashes and (b) munitions testing at the UTTR, as to which the Staff's review had not yet been completed (Statement of Position at 2, Attachment at 14).

At this time, the Staff has completed its review as to whether a credible hazard is posed by commercial aircraft crashes and munitions testing at the UTTR; the Staff's position concerning these issues is set forth in the attached Affidavit of Amitava Ghosh. As set forth therein, the Staff is satisfied that commercial aircraft crashes and munitions testing at the UTTR do not pose a credible hazard for the Applicant's proposed ISFSI. At this time, the Staff has not completed its review of the hazard posed by military aircraft crashes and is therefore unable to state a position herein with respect to that issue.<sup>2</sup>

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<sup>1</sup> See "NRC Staff's Statement of Its Position Concerning Group I Contentions" ("Statement of Position"), dated June 15, 1999, Attachment at 14-16.

<sup>2</sup> See "State of Utah's Unopposed Motion for Extension of Time For Partial Response to the Applicant's Motion For Partial Summary Disposition of Utah Contention K and Confederated Tribes Contention B," dated July 20, 1999.

In sum, as to all issues raised in the Applicant's Motion other than the hazard posed by military aircraft crashes, the Staff supports the Motion and recommends that it be granted.<sup>3</sup>

### DISCUSSION

#### A. Legal Standards Governing Motions for Summary Disposition

Pursuant to 10 C.F.R. § 2.749(a), "[a]ny party to a proceeding may move, with or without supporting affidavits, for a decision by the presiding officer in that party's favor as to all or any part of the matters involved in the proceeding. The moving party shall annex to the motion a separate, short, and concise statement of the material facts as to which the moving party contends that there is no genuine issue to be heard." In accordance with 10 C.F.R. § 2.749(b), when a properly supported motion for summary disposition is made, "a party opposing the motion may not rest upon the mere allegations or denials of his answer; his answer by affidavits or as otherwise provided in this section must set forth specific facts showing that there is a genuine issue of fact."<sup>4</sup> In addition, an opposing party must annex to its answer a short and concise statement of material facts as to which it contends there exists a genuine issue to be heard.

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<sup>3</sup> The paragraphs in the Applicant's Statement of Material Facts as to which the Staff takes no position at this time are as follows: Material Facts Nos. C17, C18, C20 (except for "hanging bombs" or other malfunctioning ordnance), C22-subpart 6 (except for "hanging bombs" and the X-33 experimental aircraft), D2, and D5-D10.

<sup>4</sup> *Accord, Cleveland Elec. Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-841, 24 NRC 64, 93 (1986). General denials and bare assertions are not sufficient to preclude summary disposition when the proponent of the motion has met its burden. *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102 (1993). Although the opposing party does not need to demonstrate that it will succeed on the issues, it must at least demonstrate that a genuine issue of fact exists to be tried. *Id.*; *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-92-8, 35 NRC 145, 154 (1992) (to avoid summary disposition, the opposing party had to present contrary evidence that was so significantly probative as to create a material issue of fact).

10 C.F.R. § 2.749(a). All material facts set forth in the moving party's statement will be deemed to be admitted unless controverted in the opposing party's statement. *Id.* Pursuant to 10 C.F.R. § 2.749(d), "[t]he presiding officer shall render the decision sought if the filings in the proceeding, depositions, answers to interrogatories, and admissions on file, together with the statements of the parties and the affidavit, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law."<sup>5</sup>

The Commission has encouraged the parties in its adjudicatory proceedings to utilize its summary disposition procedures "on issues where there is no genuine issue of material fact so that evidentiary hearing time is not unnecessarily devoted to such issues." *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 457 (1981).<sup>6</sup> Further, the Appeal Board has recognized that summary disposition provides "an efficacious means of avoiding unnecessary and possibly time-consuming hearing on demonstrably insubstantial issues." *Wisconsin Elec. Power Co.* (Point Beach Nuclear Plant, Unit 1), ALAB-696, 16 NRC 1245, 1263

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<sup>5</sup> Pursuant to 10 C.F.R. § 2.749(c), if a party opposing the motion demonstrates in its affidavits that valid reasons exist why it cannot provide facts essential to oppose the motion, the presiding officer may deny the motion, order a continuance to permit affidavits to be obtained, or take such other action as may be appropriate.

<sup>6</sup> The Commission recently endorsed its earlier policy statement, but indicated that "Boards should forego the use of motions for summary disposition except upon a written finding that such a motion will likely substantially reduce the number of issues to be decided, or otherwise expedite the proceeding." *Statement of Policy on Conduct of Adjudicatory Proceedings*, CLI-98-12, 48 NRC 18, 20-21 (1998). The Staff submits that partial summary disposition of these contentions will reduce the multiplicity of issues that require hearing in this proceeding, and will otherwise serve to expedite the proceeding.

(1982); *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 550 (1980).<sup>7</sup>

The Commission's summary disposition procedures have been analogized to Rule 56 of the Federal Rules of Civil Procedure. *See, e.g., Cleveland Elec. Illuminating Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753-54 (1977). The Commission, when considering motions for summary disposition filed pursuant to 10 C.F.R. § 2.749, generally applies the same standards that the Federal courts use in determining motions for summary judgment under Rule 56 of the Federal Rules. *Advanced Medical Systems*, 38 NRC at 102 (1993). Decisions arising under Rule 56 of the Federal Rules may thus serve as guidelines to the Commission's adjudicatory boards in applying 10 C.F.R. § 2.749. *Perry*, 6 NRC at 754.

Under Rule 56 of the Federal Rules, the party seeking summary judgment has the burden of proving the absence of genuine issues of material fact. *Adickes, v. S. H. Kress & Co.*, 398 U.S. 144, 157 (1970); *Advanced Medical Systems*, 38 NRC at 102. In addition, the record is viewed in the light most favorable to the party opposing the motion. *Poller v. CBS, Inc.*, 368 U.S. 464, 473 (1962); *Kerr-McGee Chemical Corp.* (West Chicago Rare Earths Facility), ALAB-944, 33 NRC 81, 144 (1991). However, if the moving party makes a proper showing for summary disposition and the opposing party fails to show that there is a genuine issue of material fact, the District Court (or Licensing Board) may summarily dispose of all of the matters before it on the basis of the filing in the proceeding, the statements of the parties, and affidavits.

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<sup>7</sup> It is well settled that an agency may ordinarily dispense with an evidentiary hearing where no genuine issue of material fact exists. *Veg-Mix, Inc. v. U.S. Dep't of Agriculture*, 832 F.2d 601, 607-08 (D.C. Cir. 1987).

Rule 56(e), Fed. R. Civ. P. *Accord, Advanced Medical Systems*, 38 NRC at 102; 10 C.F.R. § 2.740(d).

The Licensing Board in this proceeding has had occasion to rule upon a motion for summary disposition filed by PFS. *See* "Memorandum and Order (Granting Motion for Summary Disposition Regarding Contention Utah C)," LBP-99-23, 49 NRC \_\_\_\_ (June 17, 1999). Therein, the Licensing Board succinctly summarized the standards governing the granting of summary disposition, as follows:

Under 10 C.F.R. § 2.749(a), (d), summary disposition may be entered with respect to any matter (or all of the matters) in a proceeding if the motion, along with any appropriate supporting material, shows that there is "no genuine issue as to any material fact and that the moving party is entitled to a decision as a matter of law." The movant bears the initial burden of making the requisite showing that there is no genuine issue as to any material fact, which it attempts to do by means of a required statement of material facts not at issue and any supporting materials (including affidavits, discovery responses, and documents) that accompany its dispositive motion. An opposing party must counter each adequately supported material fact with its own statement of material facts in dispute and supporting materials, or the movant's facts will be deemed admitted. See *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102-03 (1993).

LBP-99-23, slip op. at 10.

As more fully set forth below, the Staff submits that summary disposition is appropriate in accordance with these established standards, with respect to the issues admitted in Utah Contention K/Confederated Tribes Contention B concerning the Tekoi Rocket Engine Test facility, Salt Lake City International Airport, wildfires, "hanging bombs," the X-33 experimental aircraft, munitions testing, and other activities at the UTTR -- *i.e.*, all activities specified in the contention

other than military aircraft crashes. Regarding the hazard posed by military aircraft crashes, the Staff expresses no position at this time, pending completion of the Staff's review of that issue.

A. Regulatory Standards Governing Credible Accidents

As filed by the State of Utah, Contention K asserts that the Applicant is required to identify, examine, and evaluate the frequency and severity of external natural and man-induced events that could affect the safe operation of the proposed facility, as well as man-made facilities and activities that may endanger the proposed facility, as required by 10 C.F.R. §§ 72.90 and 72.94. See Utah Contentions at 72.

Pursuant to 10 C.F.R. § 72.90(b) and (c), proposed sites for the ISFSI must be examined "with respect to the frequency and severity of external natural and man-induced events that could affect the safe operation of the ISFSI," and design basis external events must be determined for the proposed site and ISFSI. Regarding design basis external man-induced events, 10 C.F.R. § 72.94 requires that the region be examined for man-made facilities that "might endanger the proposed ISFSI" and "[t]he important potential man-induced events that affect" the facility design must be identified.<sup>8</sup> Also, as set forth in 10 C.F.R. § 72.92 (a), natural phenomena "that may exist or that can occur in the region of a proposed site" must be identified and assessed "according to their potential effects on the safe operation" of the facility. Further, important natural phenomena that affect the ISFSI design must be identified and records of the occurrences

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<sup>8</sup> The State also refers to 10 C.F.R. §§ 72.98, 72.100, 72.108, and 72.122. These provisions set forth requirements to identify the regional extent of external phenomena that are used as a basis for the design of the facility; to define potential effects of the ISFSI on the population and regional environment; to evaluate potential impacts resulting from transportation of radioactive waste or spent fuel within the region; and overall standards for the general design criteria of the ISFSI.

and severity of those important natural phenomena must be collected and evaluated. 10 C.F.R. §§ 72.92 (a) and (b). In addition, methods for evaluating the design basis external natural events are to be based on the regional characteristics and the current state of knowledge concerning such events. 10 C.F.R. § 72.92 (c).

B. Utah Contention K/ Confederated Tribes Contention B

The State, in Contention Utah K, identifies specific activities conducted at several commercial and military facilities and asserts that the Applicant has failed to adequately analyze the impacts posed by these facilities. Utah Contentions at 73. Specifically, the State describes activities involving the Tekoi Rocket Engine Test Facility, Dugway Proving Ground, Michael Army Airfield at Dugway Proving Ground, Salt Lake City International Airport, and the Utah Test and Training Range.

1. Tekoi Rocket Engine Test Facility

Regarding the Tekoi facility, the State asserts that the Applicant has failed to consider the potential for a static fired rocket motor to escape from a test harness and has failed to consider the impact of an explosion reaching the facility. Utah Contentions at 73. The Applicant in its Motion asserts that these events, including the hazard posed to the ISFSI from a rocket motor exploding while in transit to the facility, would not pose a significant hazard to the facility. Motion at 4-7; Statement of Material Facts at ¶¶ A1-A17.

As set forth in the attached Affidavit of Amitava Ghosh, the Staff has determined that the activities involving the Tekoi Rocket Test Engine Facility would not pose a credible hazard to the Applicant's proposed facility. Ghosh Aff. at ¶ 9. Further, the Staff does not dispute the assertions made in the Applicant's Statement of Material Facts attached to its Motion. Ghosh Aff.

at ¶ 8. For these reasons, the Staff submits that there does not exist any genuine issue of material fact with respect to the hazards posed by the Tekoi facility.

2. Dugway Proving Ground

Regarding the Dugway Proving Ground, Utah Contention K sets forth various activities, including: testing of conventional munitions, "chemical agents, chemical agent decontaminants, personal protective equipment, smokes, illuminates, and chemical and biological defense monitoring equipment." Utah Contentions at 74. The State additionally raises issues pertaining to the landing of aircraft carrying "hanging bombs," and the landing of the X-33 hydrogen-powered aircraft at Michael Army Airfield. *Id.* at 74, 77. Further, the State addresses potential impacts of an accident during transportation of testing material on the Skull Valley Road. *Id.* at 78. The Applicant in its Motion asserts that these events would not pose a significant hazard to the facility. Motion at 9-15; Statement of Material Facts at ¶¶ C1-C22.

As set forth in the attached Affidavit of Amitava Ghosh, the Staff has reviewed the Applicant's Statement of Material Facts, Section C, pertaining to Dugway Proving Ground. As stated in the Ghosh Affidavit, the Staff has determined that activities pertaining to Dugway Proving Ground, and Michael Army Airfield (involving "hanging bombs" and the X-33 experimental aircraft) would not pose a credible hazard to the Applicant's proposed ISFSI. Ghosh Aff. at ¶ 9. Further, the Staff does not dispute the Applicant's Statement of Material Facts -- except that no position is expressed with respect to Statements of Material Fact involving military aircraft crashes. *Id.* at ¶ 8. Accordingly, the Staff submits that there does not exist any genuine issue of material fact with respect to the hazards to the PFS facility posed by Dugway Proving

Ground -- other than the issue of military aircraft crashes involving military flights to and from Michael Army Airfield, as to which the Staff takes no position at this time.

3. Salt Lake City International Airport

The State, in Contention Utah K, raises an issue concerning the proximity of flights to or from Salt Lake City International Airport (SLCIA), to the ISFSI. Utah Contentions at 76. The Applicant in its Motion asserts that aircraft flying to and from SLCIA would not pose a significant hazard to the facility. Motion at 7-9; Statement of Material Facts at ¶¶ B1-B9.

As set forth in the attached Affidavit of Amitava Ghosh, the Staff has determined that aircraft taking off and landing at SLCIA and other nearby municipal airports do not pose a credible hazard to the ISFSI because of the distance involved, which exceeds ten statute miles. Ghosh Aff. at ¶ 6. Further, the Staff concludes that, based on an evaluation conducted in accordance with NUREG-0800, the probability of an aircraft crash at the ISFSI with respect to aircraft in transit to or from SLCIA through Routes J-56 and V-257 is well below  $10^{-7}$  per year. *Id.* Thus, the Staff concludes that aircraft crashes do not pose a credible hazard to the Applicant's proposed ISFSI. *Id.* Further, the Staff does not dispute the assertions made in the Applicant's Statement of Material Facts regarding the SLCIA. *Id.* at ¶ 8. Accordingly, the Staff submits that there does not exist any genuine issue of material fact with respect to the hazards to the PFS facility posed by the SLCIA.

5. Utah Test and Training Range

The State, in Contention Utah K, asserts that the Applicant has failed to analyze potential risks from the North or South UTTR that may impact the ISFSI. Utah Contentions at 76. The State asserts that the U.S. Air Force uses the UTTR for propagation testing of military ordnance

and as a training range for air-to-air and air-to-ground live munitions training. *Id.* The State further asserts that aircraft flying to and from Hill Air Force Base and the UTTR would pose a hazard to the facility. *Id.* at 74-77. In its Motion, the Applicant sets forth the bases for its assertion that the use of air-delivered weapons at the UTTR, cruise missile launches at the UTTR, and aircraft flights en route to the UTTR would not pose a significant risk to the ISFSI. Motion at 15-18; Statement of Material Facts ¶¶ D1-D19.

As set forth in the attached Affidavit of Amitava Ghosh, the Staff has reviewed issues involving munitions testing at the UTTR, including cruise missiles, and has concluded that these activities do not pose a credible hazard to the Applicant's proposed ISFSI. Ghosh Aff. at ¶ 5. In addition, the Staff does not dispute the assertions made in the Applicant's Statement of Material Facts regarding munitions testing, including cruise missile launches, at the UTTR. *Id.* at ¶ 8. Accordingly, the Staff submits that there does not exist any genuine issue of material fact with respect to the hazards posed from munitions testing, including cruise missile testing, at the UTTR. The Staff expresses no position with respect to the hazard posed by the military aircraft crashes involving airplanes en route to or from the UTTR or Hill Air Force Base.

6. Wildfires in Skull Valley

The Confederated Tribes, in their Contention B, contend that the Applicant has failed to plan for impacts stemming from wildfires. *See* Confederated Tribes Contentions at 4. In its Motion, the Applicant sets forth the bases for its assertion that wildfires pose no credible hazard to the ISFSI. *See* Motion at 18-20, Statement of Material Facts at E1-E11. As set forth in the attached Affidavits of Amitava Ghosh, Jack Guttman, and Paul Lain, the Staff has reviewed the Applicant's Statement of Material Facts in support of its Motion. The Staff has determined that

the Statement of Material Facts, Section E, regarding impacts stemming from wildfires in Skull Valley is correct, with the exception of Material Facts No. 11. See Ghosh Aff. at ¶¶ 8-10; Guttman Aff. at ¶ 5; Lain Aff. at ¶ 4. With respect to Material Fact No. 11, the Staff disagrees with the Applicant that the threat a fire might pose to systems at the ISFSI other than those important to safety are necessarily "irrelevant" to licensing, but is satisfied that the threat a wildfire might pose to systems at the PFSF that are not "important to safety" would not pose a significant hazard to the facility that would result in a release of radioactive material. Lain Aff. at ¶ 3. Further, while the Staff has concluded that the SAR should be revised to reflect the Applicant's evaluation of wildfires in accordance with 10 C.F.R. § 72.92,<sup>9</sup> the Staff is satisfied that wildfires are bounded by the design basis fire discussed in Safety Analysis Report § 8.2.5 (*i.e.*, the design basis does not have to be revised to address wildfires), and wildfires do not pose a threat to the safe operation of the facility. Lain Aff. at ¶ 4; Guttman Aff. at ¶ 5; Ghosh Aff. at ¶ 10.<sup>10</sup>

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<sup>9</sup> In this regard, the Staff submits that summary disposition is appropriate at this time, notwithstanding the Staff's view that the SAR should be revised to reflect the Applicant's consideration of wildfires, since the Applicant has already conducted this evaluation -- as described in its February 10, 1999 response to the Staff's Requests for Additional Information (RAI 8-3) and in its summary disposition motion -- and only an administrative task is involved in updating the SAR to reflect this evaluation. In any event, this matter may appropriately be addressed by granting summary disposition of the wildfire issue upon a condition that the Applicant revise its SAR to reflect its consideration of wildfires.

<sup>10</sup> As set forth in the attached Affidavit of Jack Guttman, the Staff is satisfied that wildfires do not pose a credible concern for the safety of the HI-STORM 100 cask system. Guttman Aff. at ¶ 5. While the Staff expresses no opinion at this time with respect to the TranStor cask system (*Id.*), a review of that system is not needed since the TranStor cask system would be required to meet the design basis for fires set forth in § 8.2.5 of the PFS Safety Analysis Report (SAR) in order for PFS to utilize the casks at its site. *Id.* Thus, the actual cask design need not be evaluated prior to resolution of the Applicant's motion for summary disposition of the wildfire issue.

Accordingly, the Staff submits that there does not exist any genuine issue of material fact with respect to the hazards posed to the PFS facility by wildfires.

In sum, the Staff submits that there does not exist any genuine issue of material fact with respect to those parts of the contention on which the Applicant requests summary disposition -- except as to the hazard raised by military aircraft crashes, as to which the Staff's review has not yet been completed. Accordingly, the Staff submits that the Applicant is entitled to a decision in its favor on these aspects of the contention as a matter of law.

#### CONCLUSION

For the reasons set forth above, and in the attached Affidavits of Amitava Ghosh, Jack Guttman and Paul Lain, the Staff submits that the Applicant is entitled to a decision in its favor as a matter of law as to whether the Tekoi Rocket Test Facility, Salt Lake City International Airport, Dugway Proving Ground, "hanging bombs," the X-33, UTTR munitions testing, and wildfires would cause credible accidents at the ISFSI resulting in radioactive releases in excess of regulatory limits. With respect to the hazard posed by military aircraft crashes, as to which the Staff's review has not yet been completed, the Staff expresses no position at this time.

Respectfully submitted,

*Catherine L. Marco*

Catherine L. Marco  
Sherwin E. Turk  
Counsel for NRC Staff

Dated at Rockville, Maryland  
this 22<sup>nd</sup> day of July 1999

July 22, 1999

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
PRIVATE FUEL STORAGE, LLC	)	Docket No. 72-22-ISFSI
	)	
(Independent Spent	)	
Fuel Storage Installation)	)	

AFFIDAVIT OF DR. AMITAVA GHOSH CONCERNING  
CONTENTION UTAH K AND CONFEDERATED TRIBES CONTENTION B

I, Amitava Ghosh, having first been duly sworn, do hereby state as follows:

1. My name is Amitava Ghosh. I am employed as a Principal Engineer at the Center for Nuclear Waste Regulatory Analyses (CNWRA), which is a division of the Southwest Research Institute (SwRI), in San Antonio, Texas. I am providing this affidavit under a technical assistance contract between the NRC Staff and the SwRI. A statement of my professional qualifications is attached hereto.

2. This Affidavit is prepared in response to "Applicant's Motion for Partial Summary Disposition of Utah Contention K and Confederated Tribes Contention B" (Motion), filed on June 7, 1999 by Private Fuel Storage L.L.C. (Applicant or PFS), and the "Statement of Material Facts" attached thereto. In particular, this Affidavit addresses the Applicant's Motion as it relates to issues pertaining to whether a credible hazard to the Applicant's proposed Independent Spent Fuel Storage Installation (ISFSI) is posed by events or conditions at Dugway Proving Ground, the Tekoi Rocket Test Engine Facility, the Salt Lake City International Airport, and the Utah Test and Training Range

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(UTTR), with the exception of military aircraft crashes. This Affidavit also addresses the Applicant's Motion as it relates to wildfires.

3. As part of my official responsibilities, I have reviewed the adequacy of the Applicant's analysis of design basis events, submitted with its application for an ISFSI license, the Applicant's responses to the Staff's Requests for Additional Information (RAIs), and the Applicant's June 30, 1999 Responses to NRC Staff's questions pertaining to aircraft crashes and air-delivered ordnance at the PFSF. I am also involved in preparing the accident analysis section of the NRC Staff's Safety Evaluation Report (SER). In addition, I participated in preparing the "NRC Staff Position" on Contention Utah K/ Confederated Tribes B as set forth in the "NRC Staff's Statement of Its Position Concerning Group I Contentions," dated June 15, 1999. The NRC Staff Position accurately represents my views with respect to this combined contention.

4. At the time that the NRC Staff Position was issued, the Staff's review of issues involving (a) commercial and military aircraft crashes, and (b) munitions testing at the UTTR, had not been completed. The Staff, therefore, could not state a position at that time with respect to those issues. Since then, the Staff has completed additional portions of its review and is able to take a position regarding munitions testing at the UTTR and commercial aircraft crashes, as set forth in paragraphs 5 and 6 below.

5. Regarding munitions testing at the UTTR, I conclude that no significant hazard to the ISFSI exists, based on the following: 1) targets for air-delivered weapons, including cruise missiles at the UTTR area, are at least 25 miles from the ISFSI, and run-ins for the delivery of these weapons do not cross Skull Valley; 2) a safety review process is conducted prior to testing; 3) the UTTR has never experienced a weapon released outside a designated release area; and 4) Flight

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Termination Systems are used on all weapon systems having the capability of exceeding range boundaries, to prevent hazards outside of their intended target areas. Accordingly, it is my conclusion that munitions testing at the UTTR does not pose a credible hazard to the Applicant's proposed ISFSI.

6. With respect to the credibility of aircraft crashes at the ISFSI involving aircraft taking off and landing at SLCIA and other nearby municipal airports do not pose a credible hazard to the ISFSI because of distance involved, which is greater than 10 statute miles. Further, with respect to aircraft in transit to or from the Salt Lake City International Airport (SLCIA) through Routes J-56 and V-257, I conclude, based on an evaluation conducted in accordance with NUREG-0800, that the probability of an aircraft crash occurring at the ISFSI site is well below  $10^{-7}$  per year and is, therefore, acceptable. Accordingly, it is my conclusion that commercial aircraft crashes do not pose a credible hazard to the Applicant's proposed ISFSI.

7. At this time, the Staff has not yet completed its review and is unable to take a position with respect to whether a credible hazard to the Applicant's proposed ISFSI is posed by military aircraft crashes. Therefore, no opinion is expressed herein regarding Statement of Material Facts ¶¶ C17, C18, D2, and D5-D10. In addition, no opinion is expressed herein regarding Statement of Material Fact ¶ C20, insofar as it relates to matters other than "hung bombs or other malfunctioning ordnance," and Statement of Material Fact C22, subpart 6, insofar as it relates to matters other than "hung bombs" and landings of the X-33 experimental aircraft.

8. I have reviewed the Applicant's Motion and the attachments thereto, in which PFS seeks partial summary disposition of Contention Utah K and Confederated Tribes B. On the basis of my review of the Applicant's Safety Analysis Report, the Applicant's responses to the NRC

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Staff's Requests for Additional Information, and the documents attached to the Applicant's Motion, I do not dispute the Applicant's Statement of Material Facts -- except that no position is expressed herein with respect to Statements of Material Fact involving military aircraft crashes (set forth in paragraph 7 above), as to which the Staff's review has not been completed.

9. Further, for the reasons set forth in the NRC Staff Position of June 15, 1999, and in paragraphs 5 and 6 above, I am satisfied that activities involving the Tekoi Rocket Test Engine Facility, Salt Lake City International Airport, munitions testing and other activities at the Utah Test and Training Range (except for military aircraft crashes), Dugway Proving Ground, Michael Army Airfield (involving aircraft with "hung bombs" and the X-33 experimental aircraft), and wildfires would not pose a credible hazard to the Applicant's proposed ISFSI. In sum, I am satisfied that none of the issues identified in Contention Utah K/Confederated Tribes B present a credible hazard for the Applicant's proposed facility, except for military aircraft crashes as to which no opinion is expressed herein.

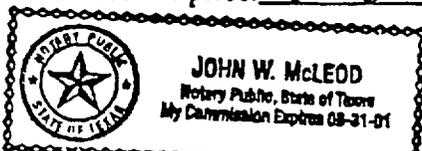
10. I am familiar with the Affidavits of Paul Lain and Jack Guttman pertaining to the issue of wildfires (attached hereto), and agree with the statements made in those Affidavits.

11. I hereby certify that the foregoing is true and correct to the best of my knowledge, information, and belief.

Amitava Ghosh  
Amitava Ghosh

Subscribed and sworn to before me  
this 22nd day of July, 1999.

John W. McLeod  
Notary Public  
My commission expires: 08-31-01



**AMITAVA GHOSH**  
**Principal Engineer**  
**Center for Nuclear Waste Regulatory Analyses**  
**Southwest Research Institute**

**B.Tech., Mining Engineering, Indian Institute of Technology, Kharagpur, India; 1978**  
**M.S., Mining Engineering, University of Arizona, Tucson, Arizona; 1983**  
**Ph.D., Mining Engineering, University of Arizona, Tucson, Arizona; 1990**

Dr. Ghosh has over 20 years of experience in conducting both academic and industrial research, consulting, and teaching in mining, geological, and geotechnical engineering with special emphasis on numerical simulations, field and laboratory experiments, rock mechanics and rock engineering, explosives and blasting, soil mechanics, rock fracture mechanics, and application of probabilistic methods, theory of fractal geometry, geostatistics, and artificial intelligence. Since joining the Center for Nuclear Waste Regulatory Analyses, he provides technical support to the U.S. Nuclear Regulatory Commission on the design and experimental programs for site characterization of the proposed repository, spent fuel project, and reclamation of active mill tailings sites.

He was the principal investigator for modeling rock joint response under cyclic, pseudostatic, and earthquake loads, evaluating rock joint constitutive models and their implementation in UDEC code, selecting computer codes for simulating coupled thermal-mechanical-hydrological processes at the proposed high-level nuclear repository site at Yucca Mountain, and lead a multi-disciplined team for developing the Centralized Interim Storage Facility Assessment Report. He has developed a part of the Standard Review Plan for reclamation of active mill tailings sites under Title II of the Uranium Mill Tailings Radiation Control Act. He is part of the team developing a module for Total-system Performance Assessment (TPA) code to assess the risk associated with waste package disruption from fault slippage at Yucca Mountain.

Dr. Ghosh worked as a postdoctoral research fellow at the University of Nevada, Reno. He quantified the utilization of explosive energy in blasting from the energy required to crush the blasted fragments. Dr. Ghosh was awarded the Rocha Medal in 1992 by the International Society for Rock Mechanics in a worldwide competition for his PhD research on the application of fractal geometry and numerical methods to examine fracture formation and propagation in rock using explosives. A paper based on the application of fractal geometry to quantify the effects of natural fractures on rock blasting won the Society of Mining Engineers Outstanding Student Paper contest in Graduate Division in 1989. He worked as a Technical Services Engineer at IDL Chemicals Ltd with emphasis on ground vibration and air blasts from blasting. Dr. Ghosh has taught several courses at the University of Arizona. He has published about 30 technical papers and 15 research reports. He has reviewed papers for several journals and rock mechanics symposiums and chaired the session of Rock Fragmentation from Blasting at the 35th US Symposium on Rock Mechanics.

**PROFESSIONAL CHRONOLOGY:** Technical Services Engineer, IDL Chemicals Ltd., 1978-1981; Graduate Assistant/Associate, University of Arizona, 1982-1990; Postdoctoral Fellow, University of Nevada, Reno, 1990-1992; Research Engineer, Southwest Research Institute, 1992-1994; Senior Research Engineer, Southwest Research Institute, 1994-1999; Principal Engineer, 1999-Present.

**MEMBERSHIPS:** International Society for Rock Mechanics; American Rock Mechanics Association; International Association for Mathematical Geology; American Geophysical Union; Society for Mining, Metallurgy, and Exploration, Inc.

July 22, 1999

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )

PRIVATE FUEL STORAGE, LLC )

(Independent Spent )

Fuel Storage Installation) )

Docket No. 72-22-ISFSI

AFFIDAVIT OF JACK GUTTMANN CONCERNING  
CONTENTION UTAH K AND CONFEDERATED TRIBES CONTENTION B

I, Jack Guttman, having first been duly sworn, do hereby state as follows:

1. My name is Jack Guttman. I am employed as a Senior Nuclear Engineer in the Spent Fuel Project Office (SFPO), Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission (NRC), in Washington, D.C. A statement of my professional qualifications is attached hereto.

2. This Affidavit is prepared in response to "Applicant's Motion for Partial Summary Disposition of Utah Contention K and Confederated Tribes Contention B" (Motion), filed on June 7, 1999 by Private Fuel Storage L.L.C. (Applicant or PFS), and the "Statement of Material Facts" attached thereto. In particular, this Affidavit addresses issues pertaining to wildfires as admitted by the Board with respect to this contention.

3. As part of my official responsibilities, I reviewed the adequacy of the thermal-hydraulic analysis for the Holtec International HI STORM-100 cask system, as described

in the HI-STORM 100 Safety Analysis Report, and I am involved in preparing the related section of the NRC Staff's Safety Evaluation Report (SER) for the HI-STORM 100 cask system.

4. Also as part of my official responsibilities, I have reviewed that portion of the Applicant's Motion which pertains to wildfires (Motion at 18-20) and the Affidavits of Carlton Britton (and his February 8, 1999 report), Jerry Cooper, Krishna Singh, and Ram Srinivasan, attached to the Applicant's Motion. In addition, I am familiar with the "NRC Staff's Statement of Its Position Concerning Group I Contentions," dated June 15, 1999, with respect to fires external to the facility (*Id.* at 16), and the Affidavit of Paul Lain, attached hereto.

5. I have reviewed a portion of the Applicant's Statement of Material Facts which pertains to wildfires (Material Facts ¶¶ E6-E8). Based on my review of the Holtec thermal-hydraulic analysis and the documents attached to the Applicant's Motion, I am satisfied that paragraphs E6-E8 of the Applicant's Statement of Material Facts is correct, insofar as they relate to the HI-STORM 100 cask system. No opinion is expressed herein with respect to the TranStor cask system, which I did not review; however, the TranStor cask system would be required to meet the design basis for fires set forth in § 8.2.5 of the PFS Safety Analysis Report (SAR), in order for PFS to utilize the casks at its site. Further, inasmuch as the design basis fire set forth in the PFS SAR bounds the fire hazard posed by wildfires (see Affidavit of Paul Lain, attached hereto), I am satisfied that PFS need not include wildfires in its design basis for its facility.

6. I hereby certify that the foregoing is true and correct to the best of my knowledge, information and belief.

  
\_\_\_\_\_  
Jack Guttmann

Subscribed and sworn to before me  
this 22nd day of July, 1999.

  
\_\_\_\_\_  
Notary Public



My commission expires: March 1, 2003

**Jack Guttman**  
**Senior Nuclear Engineer**  
**Spent Fuel Project Office**  
**Office of Nuclear Material Safety and Safeguards (NMSS)**  
**U. S. Nuclear Regulatory Commission**

**B.S. in Mechanical Engineering, Michigan Technological University, 1973**  
**M.S. Nuclear Engineering, University of Michigan, 1974**

Mr. Guttman has experience in nuclear engineering related to thermal-hydraulic and mechanical engineering analysis. Mr. Guttman worked at the Idaho National Engineering Laboratory as a contractor to the NRC in the area of thermal-hydraulic computer code validation and analysis. He performed analyses that quantified the conservatism between the accident analysis requirements for licensing nuclear power plants (10 C.F.R. Part 50, Appendix K), validated the computer code RELAP for regulatory application by the NRC, and performed independent confirmatory transient and accident analyses of operating reactor events and safety issues defined by the NRC.

While working at the NRC, Mr. Guttman was responsible for reviewing and approving the computer codes used by the nuclear industry for transient and accident analysis. He was the Office of Nuclear Reactor Regulation (NRR) representative on the Advanced Code Review Committee, the Loss of Fluid Test Facility, and the Semiscale Test Facility. Mr. Guttman performed independent analyses of plant operating events, including regulatory responses to the TMI event. He was a member of the BWR Bulletins and Orders Task Force that reviewed the ramifications of the TMI-2 events for boiling water reactors. He reviewed and approved emergency operator procedures for PWR designs and performed quality assurance inspections. Mr. Guttman developed standard review plans for analyzing reactor transient and accident events, developed regulatory guidance and NUREG documents for implementing Risk-Informed In-Service Testing of Piping, and was on the task force for developing Risk-Informed regulatory guidance documents.

With respect to policy development, Mr. Guttman served as a technical assistant to Commissioner Forrest J. Remick. He advised Commissioner Remick on policy development of advanced nuclear power plants, operating reactor issues, research needs, and represented the Commission as an observer on INPO inspections.

Mr. Guttman is currently performing thermal and containment evaluations of spent nuclear fuel transportation and storage casks. His work includes the evaluation of normal, off-normal and accident dose analyses, and the adequacy of the thermal design of spent nuclear fuel casks.

**PROFESSIONAL CHRONOLOGY:** Jr. Engineer, Detroit Edison Co., Enrico Fermi Atomic Power Plant-I, 1972-73; Research Engineer, Idaho National Engineering Laboratory, 1975-1976; Nuclear Engineer, Office of Nuclear Reactor Regulation, NRC, 1976-1985; Technical Coordinator, Office of the Secretary, NRC, 1985-1990; Technical Assistant, Office of the Commission, NRC, 1990-1994; Sr. Reliability and Risk Assessment Engineer, Office of Nuclear Regulatory Research, NRC, 1994-1999; Sr. Nuclear Engineer, Office of Nuclear Material Safety and Safeguards, NRC, 1999-present.

July 22, 1999

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
)  
PRIVATE FUEL STORAGE, LLC ) Docket No. 72-22-ISFSI  
)  
(Independent Spent )  
Fuel Storage Installation) )

AFFIDAVIT OF PAUL LAIN CONCERNING  
CONTENTION UTAH K AND CONFEDERATED TRIBES CONTENTION B

I, Paul Lain, having first been duly sworn, do hereby state as follows:

1. My name is Paul Lain. I am employed as a Fire Protection Engineer in the Licensing and International Safeguards Branch, Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission (NRC), in Washington, D.C. A statement of my professional qualifications is attached hereto.

2. This Affidavit is prepared in response to "Applicant's Motion for Partial Summary Disposition of Utah Contention K and Confederated Tribes Contention B" (Motion), filed on June 7, 1999, by Private Fuel Storage L.L.C. (Applicant or PFS), and the "Statement of Material Facts" attached thereto. In particular, this Affidavit addresses issues pertaining to wildfires as admitted by the Board with respect to this contention.

3. I have reviewed the portion of the Applicant's Motion which pertains to wildfires (Motion at 18-20), the Affidavits of Carlton Britton (and his February 8, 1999 report), Jerry Cooper, Krishna Singh, and Ram Srinivasan, filed with the Applicant's motion. I have also

reviewed those portions of the Statement of Material Facts which pertain to wildfires (§§ E1-E11). I have also reviewed pertinent sections of the Applicant's Safety Analysis Report, and the NRC Staff's Position Concerning Group I Contentions, dated June 15, 1999, with respect to fires external to the facility (Id. at 16). In addition, I have read and am familiar with the Affidavit of Jack Guttman, attached hereto.

4. Based on my review of the Applicant's Motion and documents attached thereto, and the Affidavit of Jack Guttman, I am satisfied that the Applicant's Statement of Material Facts with respect to wildfires (§§ E1-E10) is correct. I do not agree with Material Fact ¶E11 (which states, "the threat a fire might pose to systems at the PFSF other than those important to safety is irrelevant to the licensing of the PFSF"). However, I do agree that the threat a wildfire might pose to systems at the PFSF other than those important to safety would not pose a significant hazard to the facility that would result in a release of radioactive material. In this regard, while the SAR should be revised to reflect the Applicant's evaluation of wildfires pursuant to 10 C.F.R. § 72.92, I am satisfied that wildfires are bounded by the design basis fire discussed in Safety Analysis Report § 8.2.5 and that wildfires do not pose a threat to the safe operation of the facility.

5. I hereby certify that the foregoing is true and correct to the best of my knowledge, information and belief.

  
\_\_\_\_\_  
Paul Lain

Subscribed and sworn to before me  
this 22nd day of July, 1999.

  
\_\_\_\_\_  
Notary Public



My commission expires: March 1, 2003

**Paul W. Lain, P.E.**  
**Statement of Professional Qualifications**

Mr. Lain is a board certified professional engineer with more than 15 years of experience in fire protection engineering. He has held technical and project management positions for the U.S. Navy, Department of Energy (DOE), and the Nuclear Regulatory Commission (NRC). He has conducted inspections on aircraft carriers, battleships, plutonium and uranium manufacturing facilities, and a nuclear waste storage facility. He has conducted over 100 shipboard fire tests to test the effectiveness of smoke control systems onboard naval vessels. He was the fire protection expert on multiple Operational Readiness Reviews for DOE nuclear facilities. Mr. Lain authored the Fire Protection Chapter of the Standard Review Plan for NRC fuel cycle facilities, and conducted the fire protection review for the re-licensing of the Nuclear Fuel Services facility in Tennessee. Currently, Mr. Lain currently conducts all fire protection licensing reviews for fuel fabrication facilities licensed by the NRC.

**EDUCATION**

Bachelor of Science in Fire Protection Engineering from the University of Maryland, 1983  
Master of Science in Fire Protection Engineering from Worcester Polytechnic Institute, 1996

**PROFESSIONAL EXPERIENCE**

From 1983 to 1991, Mr. Lain was a fire protection engineer for the Fire Protection Systems Branch of the Naval Sea Systems Command. He was the project manager for many research projects pertaining to fire protection onboard U.S. naval ships and submarines. He conducted over 100 large scale fire tests onboard the navy's test vessel USSX Shadwell, to determine the feasibility of active smoke control utilizing the existing shipboard ventilation system. He performed fire protection inspections and design reviews on a variety of naval vessels.

From 1991 to 1997, Mr. Lain was a fire protection engineer for the Division of Nuclear Material and Facility Stabilization at DOE. Mr. Lain was the fire protection subject matter expert for reviews of Safety Analysis Reports (SARs) at Rocky Flats Environmental Technology Site and Idaho National Engineering Laboratory, for Operational Readiness Reviews of F-Canyon, FB-Line, and the Inter Tank Processing facilities at the Savanna River Site, and the Fire Protection Vulnerability Review of Y12 and K25 facilities at Oak Ridge.

Since May of 1997, Mr. Lain has been a fire protection engineer for the NRC Office of Nuclear Materials Safety and Safeguards, in the Licensing and International Safeguards Branch. He conducts fire safety reviews for fuel cycle facilities licensed by the NRC and is the NRC project manager for the Siemens Power Corporation facility in Richland, Washington. Additional duties have included the development of the Fire Safety Chapter of the Standard Review Plan for fuel cycle facilities, inspection of Oak Ridge National Laboratory's Research and Engineering Development Center for the DOE Pilot Study, and inspection of the Gaseous Diffusion Plant at Paducah, KY.

**MEMBERSHIPS**

Mr. Lain is a member of the National Fire Protection Association (NFPA) and has served on several standards committees of the NFPA. He is a licensed professional engineer in the State of Maryland.

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-ISFSI  
)  
(Independent Spent )  
Fuel Storage Installation) )

CERTIFICATE OF SERVICE

I hereby certify that copies of the "NRC STAFF'S RESPONSE TO APPLICANT'S MOTION FOR PARTIAL SUMMARY DISPOSITION OF UTAH CONTENTION K AND CONFEDERATED TRIBES CONTENTION B" in the above captioned proceeding have been served on the following through deposit in the Nuclear Regulatory Commission's internal mail system, or by deposit in the United States mail, first class, as indicated by an asterisk, with copies by electronic mail as indicated, this 22nd day of July, 1999:

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U.S. Nuclear Regulatory Commission  
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*Catherine L. Marco*

Catherine L. Marco  
Counsel for NRC Staff