



## TABLE OF CONTENTS

	Page
TABLE OF AUTHORITIES .....	ii
I. BACKGROUND .....	2
A. Factual Background .....	2
B. Procedural History .....	2
II. STANDARD OF REVIEW .....	4
III. ARGUMENT .....	5
A. A $10^{-7}$ Risk Standard, as Established in NUREG-0800 is a Conservative Upper Bound for Aircraft Impact Probability at the PFS ISFSI Site .....	5
B. The Board Erred in Granting Summary Disposition on the Appropriate Aircraft Crash Risk Standard Because of Lack of Ripeness and Unresolved Disputed Relevant Material Facts .....	9
C. An Aircraft Crash Risk Standard of $10^{-7}$ Applies Because PFS Has Failed to Demonstrate Adequate Conservatism in Calculating the Risk of Aircraft Crashes .....	12
D. The Generic Standard Developed Through Rulemaking for a Part 60 Facility Is Not an Appropriate Standard for the PFS ISFSI Site .....	13
CONCLUSION .....	17

## TABLE OF AUTHORITIES

### CASES

<i>Advanced Medical Systems, Inc.</i> (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 N.R.C. 98 (1993) .....	4, 10
<i>Consolidated Edison Co. of N.Y.</i> (Indian Point, Unit 2 and <i>Power Authority of the State of N.Y.</i> (Indian Point, Unit 3), LBP-82-105, 16 N.R.C. 1629 (1982). ....	7
<i>Consumers Power Co.</i> (Midland Plant, Units 1 and 2), LBP-82-118, 16 N.R.C. 2034 (1982), <i>citing Federal Power Commission v. Texaco, Inc.</i> , 377 U.S. 33 (1964) .....	14
<i>Curators of the University of Missouri</i> , CLI-95-01, 41 N.R.C. 71 (1995) .....	7
<i>General Electric Co.</i> (GE Morris Operation Spent Fuel Storage Facility), LBP-82-14, 15 N.R.C. 530 (1982) .....	5, 11
<i>Long Island Lighting Co.</i> (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 N.R.C. 275 <i>review denied</i> , CLI-88-11, 28 N.R.C. 603 (1988) .....	7
<i>Long Island Lighting Co.</i> (Shoreham Nuclear Power Station, Unit 1), CLI-86-11, 23 N.R.C. 577 (1986) .....	5
<i>Northern Indiana Public Service Co.</i> (Bailly Generating Station, Nuclear 1), ALAB-303, 2 N.R.C. 858 (1975) .....	4
<i>Private Fuel Storage, L.L.C.</i> (ISFSI), LBP-01-19, 53 N.R.C. ____ (2001) .....	1, 4, 9, 10, 13, 14
<i>Private Fuel Storage L.L.C.</i> (ISFSI), CLI-01-15, 53 N.R.C. ____ (2001) .....	1, 4
<i>Private Fuel Storage L.L.C.</i> (ISFSI), LBP-98-7, 47 N.R.C. 142 (1998) <i>aff'd on other grounds</i> , CLI-98-13, 48 N.R.C. 26 (1998) .....	2
<i>Private Fuel Storage L.L.C.</i> (ISFSI), LBP-99-35, 50 N.R.C. 180 (1999) .....	2
<i>Sequoyah Fuels Corporation and General Atomics</i> (Gore, Oklahoma Site Decontamination and Decommissioning Funding), CLI-97-13, 46 N.R.C. 195 (1997) .....	4

<i>Sequoyah Fuels Corp. and General Atomics Corp. (Gore, Oklahoma Site Decontamination and Decommissioning Funding), LBP-94-17, 39 NRC 359, aff'd CLI-94-11, 40 NRC 55 (1994)</i> .....	11
---	----

## FEDERAL STATUTES AND REGULATIONS

5 U.S.C. § 553 .....	14
10 C.F.R. Part 60 .....	13, 14, 16, 17
10 C.F.R. Part 72 .....	7, 10, 14, 16, 17
10 C.F.R. § 2.749 .....	4, 5
10 C.F.R. § 2.804 .....	14
10 C.F.R. § 72.90 .....	5, 6
10 C.F.R. § 72.94 .....	5
10 C.F.R. § 72.100 .....	5
10 C.F.R. § 72-104 .....	5
10 C.F.R. § 72-122 .....	5
60 Fed. Reg. 15180 (1995) .....	16
61 Fed. Reg. 64257 (1996) .....	15, 16

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

---

In the Matter of:

)  
)  
)  
)  
)

Docket No. 72-22-ISFSI

PRIVATE FUEL STORAGE, LLC  
(Independent Spent Fuel  
Storage Installation)

ASLBP No. 97-732-02-ISFSI

July 13, 2001

---

**STATE OF UTAH'S BRIEF ON THE QUESTION CERTIFIED IN LBP-01-19:  
THE REGULATORY STANDARD FOR AIRCRAFT CRASH HAZARDS AT  
THE PFS SITE - CONTENTION UTAH K (CREDIBLE ACCIDENTS)**

In ruling on the Applicant's Motion for Summary Disposition of Utah Contention K/Confederated Tribes B ("Contention Utah K"), the Licensing Board granted summary disposition to the Applicant on the applicable aircraft crash probability standard, but in doing so the Board recognized the importance of the appropriate benchmark probability standard and certified this portion of its ruling to the Commission. LBP-01-19 at 21.<sup>1</sup> The Commission accepted review, and in accordance with the Commission's June 27, 2001, Order, CLI-01-15, the State of Utah hereby submits its brief addressing the question before the Commission, *i.e.*, whether the appropriate probability standard for aircraft crash incidents at the PFS independent spent fuel storage installation ("ISFSI") site should be  $10^{-7}$  or  $10^{-6}$  per year.

---

<sup>1</sup> Memorandum and Order (Granting in Part and Denying in Part Summary Disposition Motion Regarding Contention Utah K/Confederated Tribes B; Referring Ruling on Aircraft Crash Hazard Regulatory Standard to the Commission), dated May 31, 2001.

## I. BACKGROUND

### A. Factual Background

Private Fuel Storage, LLC (“PFS”) proposes to build and operate the largest, away-from-reactor, ISFSI in the United States on a very small Indian reservation beneath the only practical flight path for low and medium altitude F-16 fighter aircraft entering the Utah Test and Training Range (“UTTR”) South Area training grounds. The PFS facility will be located under the Sevier B Military Operating Area<sup>2</sup> (“MOA”), adjacent to the UTTR bombing and cruise missile test range, and near other military and commercial flight paths.

### B. Procedural History

The Board admitted the State’s Contention Utah K, which challenged PFS’s assessment of credible accidents. *See* LBP-98-7, 47 NRC 142, 190-91, 234-35, 247-48 (1998), *aff’d on other grounds*, CLI-98-13, 48 NRC 26 (1998). In its first attempt to dismiss Contention Utah K, the Applicant moved for Partial Summary Disposition (“First Motion”) on June 7, 1999. The Board deferred ruling on some issues pending the Staff taking a position on military aircraft crashes and granted in part and denied in part other portions of the Applicant’s First Motion. *See* LBP-99-35, 50 NRC 180, 200-201 (1999).

To address the aircraft crash issues raised in Contention Utah K, the Applicant prepared numerous iterations of “Report to the NRC, Aircraft Crash Impact Hazard at the

---

<sup>2</sup> The Sevier B Military Operating Area is part of the Utah Test and Training Range Airspace and is where low altitude training, air-to-air combat training, major warfare exercises, and cruise missile testing are authorized. State of Utah’s Response to Applicant’s Motion for Summary Disposition of Utah Contention K/Confederated Tribes Contention B (January 30, 2001) (“State’s Response”), Horstman Dec. ¶ 11 and Exhibit D thereto.

Private Fuel Storage Facility” (“Aircraft Crash Report”).<sup>3</sup> On October 6, 2000, the NRC Staff published its Safety Evaluation Report (“SER”) for the PFS facility, and pronounced PFS’s aircraft crash assessment adequate. SER at 15-81, -101.

On December 30, 2000, the Applicant filed a second Motion for Summary Disposition of Utah Contention K/Confederated Tribes B (“Second Motion”).<sup>4</sup> Notwithstanding the Staff’s sign-off on all safety related issues, on January 23, 2001 the Staff notified the Board that it could not take a position on Contention Utah K with respect to “the Utah Test and Training Range and Hill Air Force Base (F-16s, jettisoned ordnance, Moser recovery route, and cruise missiles), general aviation aircraft, and cumulative risks,” because of the need to evaluate new information submitted by PFS.<sup>5</sup> NRC Staff Counsel Sherwin E. Turk’s letter to Board (January 23, 2001) at note 1. The Staff has yet to take a position on the outstanding issues in Contention Utah K. The State and NRC Staff<sup>6</sup> filed responses to PFS’s Second Motion for summary disposition on January 30, 2001.

On May 31, 2001, the Board issued its ruling on PFS’s Motion for Summary Disposition, which granted summary disposition of the aircraft crash risk standard, holding

---

<sup>3</sup> PFS submitted its original report on November 24, 1999 with subsequent revisions submitted February 2, 2000 (Rev. 1), June 2, 2000 (Rev. 2), June 17, 2000 (Rev. 3), and August 11, 2000 (Rev. 4).

<sup>4</sup> In its Second Motion, PFS now argues for the less protective standard of  $10^{-6}$ . See Second Motion at 9-11.

<sup>5</sup> The Applicant provided new information in its Second Motion. Additionally, on January 19, 2001, the Applicant revised its Safety Analysis Report concerning aircraft hazards and submitted an Addendum to its Aircraft Crash Impact Hazard Report, Rev. 4.

<sup>6</sup> NRC Staff’s Response to Applicant’s Motion for Summary Disposition of Utah Contention K and Confederated Tribes Contention B (January 30, 2001) (“Staff Response”).

10<sup>-6</sup> as the appropriate standard rather than the 10<sup>-7</sup> standard advocated by the State. *See* LBP-01-19 at 21. In recognizing the “significant policy and resource implications” of its decision, the Board certified its ruling to the Commission. *Id.* The Commission accepted review of the appropriate benchmark probability for aircraft crash hazards. CLI-01-15.

## II. STANDARD OF REVIEW

Commission review of Board decisions on legal and policy matters is de novo.<sup>7</sup> In reviewing factual determinations, the Commission must give due deference to the Licensing Board as the primary fact-finder.<sup>8</sup>

In the context of review of this summary disposition decision, the Commission must also take into account the heavy burden borne by the movant, PFS. Pursuant to 10 C.F.R. § 2.749, a party is entitled to summary disposition if “there is no genuine issue as to any material fact” and the party “is entitled to a decision as a matter of law.” Advanced Medical Systems, Inc. (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102 (1993). The burden of proving entitlement to summary disposition is on the movant, and “the Board must view the record in the light most favorable to the party opposing such a motion.” *Id.* Furthermore, if there is any possibility that a litigable issue of fact exists or any doubt as to whether the parties should be permitted or required to proceed further, the

---

<sup>7</sup> Sequoyah Fuels Corporation and General Atomics (Gore, Oklahoma Site Decontamination and Decommissioning Funding), CLI-97-13, 46 NRC 195, 206 (1997).

<sup>8</sup> Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear 1), ALAB-303, 2 NRC 858, 867 (1975).



motion must be denied.<sup>9</sup> Summary judgment may also be denied or continued if the opposing party demonstrates in its affidavits that it cannot present facts essential to justify its opposition.<sup>10</sup>

### III. ARGUMENT

#### A. A $10^{-7}$ Risk Standard, as Established in NUREG-0800, is a Conservative Upper Bound for Aircraft Impact Probability at the PFS ISFSI Site.

PFS is located next to the largest military bombing and training range in the continental United States. This factor is critical in ascertaining the siting evaluation factors specific to the PFS ISFSI site. PFS is required to demonstrate that it meets the requirements of 10 C.F.R. §§ 72.90, 72.94, and 72.100 for evaluating impacts to its proposed facility from credible accidents. It is also required to demonstrate that any proposed structures, systems and components will be constructed to withstand postulated accidents under 10 C.F.R. § 72.122. Moreover, PFS must meet the dose limits in 10 C.F.R. § 72.104. If PFS cannot demonstrate in the course of these analyses that adequate protection will be provided against credible accidents, its proposed location must be deemed unsuitable under 10 C.F.R. § 72.90(d).

In evaluating the adequacy of safety analyses, the Commission has accepted the use of probabilistic considerations or probability bounds, – a frequency of occurrence below which a potential accident is considered to be so unlikely that it need not be considered. See

---

<sup>9</sup> General Electric Co. (GE Morris Operation Spent Fuel Storage Facility), LBP-82-14, 15 NRC 530, 532 (1982).

<sup>10</sup> 10 C.F.R. § 2.749(c); Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-86-11, 23 NRC 577 (1986).

NUREG-0800 § 3.5.1.6, Aircraft Hazards (1981). This section provides guidance on the assessment of aircraft hazards. It also accepts a risk standard of less than  $10^{-7}$  per year. *Id.* at 3.5.1.6-2. If meaningful and conservative individual input factors are used, Section 3.5.1.6 provides a “conservative upper bound on aircraft impact probability.” *Id.* at 3.5.1.6-4.

In accordance with 10 C.F.R. § 72.90(d), PFS must prove that its proposed storage site is adequately protected from aircraft crashes (design basis external events). To demonstrate its storage site is adequately protected, PFS must evaluate the frequency and severity of aircraft crashes. 10 C.F.R. § 72.90(b). PFS claims it calculated the frequency of aircraft crashes in conformity with NUREG-0800, § 3.5.1.6, Aircraft Hazards (1981). Aircraft Crash Report, Rev. 4 at 7.<sup>11</sup>

In its First Motion, PFS holds out the  $10^{-7}$  standard of acceptable risk found in NUREG-0800 as the measure it must meet. First Motion, Cole Dec., Exhibit 2 at 19. Consistent with PFS’s past reaction to challenges to its various analyses, PFS selectively utilizes only the propitious aspects of the applicable rules or guidance and disregards less favorable components. PFS’s first analysis failed to even calculate the probability of an aircraft crash. Safety Analysis Report, Rev. 0, § 2.2. However, in the most recent iteration of its Aircraft Crash Report, PFS calculates an accumulative aircraft crash probability that exceeds the  $10^{-7}$  risk standard established in NUREG-0800. *See* Aircraft Crash Report, Rev. 4 at 87. As a consequence, in its Second Motion, PFS argued for a less protective aircraft

---

<sup>11</sup> NUREG-0800 establishes an acceptable aircraft crash probability as less than  $10^{-7}$  per year. NUREG-0800 at 3.5.1.6-2. If the probability exceeds  $10^{-7}$ , then the structures, systems, and components important to safety must be protected from the effects of missiles (eg, aircraft engines or ordnance). *Id.*

crash standard than the  $10^{-7}$  standard established in NUREG-0800. Second Motion at 9-11.

It is well-established that NUREGs or guidance documents are not legally binding regulations. *See e.g.*, Curators of the University of Missouri, CLI-95-1, 41 NRC 71, 150 (1995). Nevertheless, an applicant can be required to show that it has taken steps to provide equivalent or better measures than called for in regulatory guides if it does not, in fact, comply with the specific requirement set forth in the guides. Consolidated Edison Co. of N.Y. (Indian Point, Unit 2) and Power Authority of the State of N.Y. (Indian Point, Unit 3), LBP-82-105, 16 NRC 1629, 1531 (1982). *See also* Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), ALAB-900, 28 NRC 275, 290, *review declined*, CLI-88-11, 28 NRC 603 (1988) (in the absence of specific rules, “guidance consistent with the regulations and at least implicitly endorsed by the Commission is entitled to . . . ‘special weight’”).

The Applicant has not taken steps to provide equivalent or better measures than called for in NUREG-0800 § 3.5.1.6. As there are no Part 72 regulations that establish a standard for the PFS site, § 3.5.1.6 -- the guidance developed specifically for risks from aircraft crashes -- should be accorded “special weight” and the  $10^{-7}$  per year standard found to be the appropriate standard for the PFS site. Moreover, because all other ISFSIs are sited in close proximity to nuclear plants or other nuclear facilities, as an indirect benefit, the public is assured that safety from aircraft crashes was assessed according to a more protective standard than  $10^{-6}$  when the risks to the nuclear plants or nuclear facilities were licensed.

In its Safety Evaluation Report, the Staff accepted the methodology in NUREG-0800, Section 3.5.1.6. SER (October 6, 2000) at 15-41. The Staff, however, contends that a

$10^{-6}$  standard is acceptable. *Id.* at 15-77. So does PFS. Both PFS and the Staff refer to NUREG-0800, Section 2.2.3, Evaluation of Potential Accidents, which states in relevant part:

the expected rate of occurrence of potential exposures in excess of the 10 CFR Part 100 guidelines of approximately  $10^{-6}$  per year is acceptable if, when combined with reasonable qualitative arguments, the realistic probability can be shown to be lower.

NUREG-0800 at § 2.2.3-2; *see also*, Second Motion at 10, n. 17; SER at 15-41. First, NUREG-0800 § 2.2.3 is not specific to aircraft crashes; NUREG-0800 § 3.5.1.6 with a  $10^{-7}$  per year probability bound, is the relevant guidance. Second, nowhere has PFS provided reasonable qualitative arguments to justify a lower realistic probability than  $10^{-7}$ .<sup>12</sup> As described below, the core of PFS's aircraft crash analysis will be tested when it is the subject of an adjudicatory hearing. The Board denied summary disposition because relevant material facts are in dispute. Those disputed facts are directly relevant, for example, to whether PFS used meaningful and conservative data as required by NUREG-0800 § 3.5.1.6 or whether PFS can meet its burden to show that the realistic probability is, in fact, lower than  $10^{-7}$ .

The proposed PFS facility is an away-from-reactor facility which, if licensed, will be authorized to store an unprecedented amount of spent nuclear fuel, not inside a structure but in the open, and under an active military operating area. In this case, only a  $10^{-7}$  standard

---

<sup>12</sup> There are multiple inputs to the formula for computing risk; some are conservative, others non-conservative, and as well there are unknowns. Simply because PFS claims to have used some conservative inputs to the formula does not make the resultant probability estimate conservative. *See e.g.*, Second Motion at 18-19. Moreover, many of PFS's claims of conservatism are disputed by the State.

will support a conservative analysis of aircraft crash hazards at the PFS ISFSI site.

**B. The Board Erred in Granting Summary Disposition on the Appropriate Aircraft Crash Risk Standard Because of Lack of Ripeness and Unresolved Disputed Relevant Material Facts.**

In denying summary disposition of aircraft crash issues relating to F-16s transiting Skull Valley, potential F-16 ordnance impacts, air-to-air combat training on the UTTR, aircraft flying the Moser Recovery Route, aircraft flying on IR-420, and the cumulative hazard, the Board found that material factual disputes clearly remain.<sup>13</sup> Moreover, the Staff's position has not yet coalesced on significant issues in Contention Utah K.<sup>14</sup> Because numerous relevant material facts remain in dispute, those issues will be litigated in an adjudicatory hearing. *See, e.g.*, June 15, 2001 Order.

Each and every material fact in dispute is directly relevant to whether 1) PFS used "meaningful and conservative data" as required by NUREG-0800, 2) PFS calculated a conservative upper bound as posited by NUREG-0800, and 3) the realistic probability is, in fact, lower than  $10^{-7}$  as PFS asserts. In its Response to the Second Motion, the State challenged as non-conservative and not bounding PFS's averaging of the number of flights through Skull Valley to estimate risk. Utah Response to Second Motion at 9-10. PFS also

---

<sup>13</sup> *See*, LBP-01-19 at 34, 37, 41-42, 43-44, 45-46, 51-52. The Board found that the following PFS material facts challenged by the State remain in dispute: C5-8, C10-12, C14, C17, C19, C26, C28, C29, C33, C34, C37, C40, C42, C44, C47, and C65-67. *Id.*

<sup>14</sup> In responding to PFS's Second Motion, the Staff failed to specifically address aircraft crash risk standard. By citing its discussion in the SER, the Staff implies its acceptance of a "threshold criterion of  $10^{-6}$  per year." Staff Response at 7. In addition, the Staff failed to take a position on Utah Test and Training Range and Hill Air Force Base (F-16s, jettisoned ordnance, Moser recovery route, and cruise missiles), general aviation aircraft, and cumulative risks. *Id.* at 2-6.

used a non-conservative and non-bounding crash rate by failing to use the higher crash rate of F-16s nearing the end of their service life. *Id.* at 10-12. A blatant example of the lack of conservatism in PFS's aircraft crash probability calculations is PFS's attempt to lower the crash probability by excluding accidents where it assumes a pilot would be able to steer a distressed F-16 – an aircraft that flies at an average speed of 400 to 450 knots – away from the site in approximately 85 percent of the accidents. Aircraft Crash Report, Rev. 4 at 23. Without further analysis and inclusion of appropriate predictive factors, it is not yet ripe to conclude the realistic probability is, in fact, lower than  $10^{-7}$ . Furthermore, there are too many disputed material facts to reach such a conclusion.

The Board acknowledged potential ripeness problems in granting summary disposition on the  $10^{-6}$  aircraft crash standard:

Our ruling on the appropriate probability threshold might be considered as lacking ripeness to the degree that if the State is able to sustain its assertion that PFS is unable to comply with the  $1E-06$  standard, then the State's assertion that a higher standard is appropriate is irrelevant. On the other hand, if the State is correct that a case-by-case analysis still is appropriate relative to Part 72 facilities, then considering the State's evidentiary material on this point at the currently planned November-December 2001 hearing likely would be a much more efficient utilization of Board and party resources.

LBP-01-19 at n. 5. Instead of viewing the record in the light most favorable to the State (the non-moving party)<sup>15</sup> and concluding that PFS must meet a site specific standard, the Board turned the summary disposition burden on its head and even though it posited that a

---

<sup>15</sup> See Advanced Medical Systems, Inc. (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102 (1993).

litigable issue may remain,<sup>16</sup> it nonetheless granted summary disposition to the movant. By rejecting the State's disputed material facts on the need for a  $10^{-7}$  site specific standard, the Board eliminated the heavy summary disposition burden placed on PFS and drew all reasonable inferences not in favor of the State but in favor of PFS.<sup>17</sup> As such, the Board erred in granting summary disposition on the aircraft standard both on ripeness grounds and on relevant unresolved disputed material facts.

PFS has not met its burden of showing that a  $10^{-6}$  standard is conservative given the external phenomena at a facility storing up to 4,000 concrete casks in the open located next to an air-to-air combat, military training and bombing range. The State urges the Commission to decide that the appropriate and conservative standard that must apply to the aircraft crash analysis at the PFS site is  $10^{-7}$ . In the alternative, if the Commission concludes that PFS may still seek to use the less protective aircraft crash standard, it should find that the Board erred in granting summary disposition and remand the matter back to the Board. Only upon resolution of relevant disputed facts can there be any reasonable assurance that there will be any conservatism or prediction of the realistic probability in an aircraft crash risk probability of  $10^{-6}$ .

---

<sup>16</sup> See General Electric Co. (GE Morris Operation Spent Fuel Storage Facility), LBP-82-14, 15 NRC 530, 532 (1982).

<sup>17</sup> See Sequoyah Fuels Corp. and General Atomics Corp. (Gore, Oklahoma Site Decontamination and Decommissioning Funding), LBP-94-17, 39 NRC 359, 361, *aff'd* CLI-94-11, 40 NRC 55 (1994).

**C. An Aircraft Crash Risk Standard of  $10^{-7}$  Applies Because PFS Has Failed to Demonstrate Adequate Conservatism in Calculating the Risk of Aircraft Crashes.**

NUREG-0800 allows a risk of  $10^{-6}$  per year if “when combined with reasonable qualitative arguments, the realistic probability can be shown to be lower.” NUREG-0800 § 2.2.3 at 2.2.3-2. *See also*, Second Motion at 10-11, n. 17. A  $10^{-6}$  risk standard is appropriate, PFS contends, because its calculated aircraft crash hazard is “conservative and the true hazard is significantly lower, realistically than [ $10^{-7}$ ].” *Id.*

In calculating the aircraft crash risk, PFS relies on the methodology described in NUREG-0800, Section 3.5.1.6, paragraph III.2.<sup>18</sup> Aircraft Crash Report, Rev. 4 at 7. The guidance states that its methodology will calculate “a conservative upper bound on aircraft impact probability if care is taken in using values for the individual factors that are meaningful and conservative.” NUREG-0800 at 3.5.1.6-4. Because NUREG-0800 seeks to establish a conservative upper bound on aircraft probability, the “realistic probability” should be lower for any estimate that meets the intent of section 3.5.1.6-4. As discussed *supra*, NUREG-0800 at 3.5.1.6-2 sets the acceptable aircraft crash risk standard at  $10^{-7}$  per year. Logically, by first establishing the  $10^{-7}$  standard, the Commission intended applicants to demonstrate more than the mere use of “meaningful and conservative data” to generate a “conservative upper bound” to allow the use of the less protective  $10^{-6}$  standard. In its Second Motion, PFS failed to show its aircraft crash probability calculations are a conservative upper bound and that the realistic probability is lower than  $10^{-7}$  per year.

---

<sup>18</sup> The Staff affirms that the NUREG-0800 methodology is appropriate. SER at 15-41.



First, in an attempt to lower the calculated aircraft crash probability as delineated by NUREG-0800 § 3.5.1.6, PFS reduces the risk calculation inappropriately by manipulating the formula and inserting factors based on PFS's analysis of past accidents. PFS's manipulation of the methodology itself strongly questions whether its calculation is a conservative upper bound for the PFS facility. See State Response at 22-25. Second, as described *supra* in part B, the Board found that relevant material facts remain in dispute on whether PFS used meaningful and conservative data in its calculations. See also *id.* Hence, it is premature to conclude whether PFS has in fact calculated a conservative upper bound in accordance with NUREG-0800 § 3.5.1.6. In sum, PFS has not shown that the less protective standard of  $10^{-6}$  is acceptable, and the Board did not have adequate grounds for granting summary disposition to PFS on this issue.

**D. The Generic Standard Developed Through Rulemaking for a Part 60 Facility Is Not an Appropriate Standard for the PFS ISFSI Site.**

When PFS could not meet the  $10^{-7}$  per year standard, it proposed a new probability bound of  $10^{-6}$ , based upon an analogy to rulemaking associated with the proposed geological repository at Yucca Mountain. In ruling on summary disposition, instead of giving deference to the non-moving party, the Board accepted a  $10^{-6}$  standard, finding that "PFS and the staff have the better of the argument." LBP-01-19 at 20. Clearly, the Board had some discomfort with its decision; it recognized that the benchmark probability is an important factor because if the  $10^{-7}$  standard is used, based on current submissions, PFS cannot meet that standard, and the Board certified the issue to the Commission. *Id.* at 21.

The record, however, does not support the Board's rationale that the newly

promulgated generic Part 60 regulations, governing waste storage and handling at the geologic repository, cover a Part 72 MRS<sup>19</sup> – and by extension the PFS facility – as well as the geologic repository. LBP-01-19 at 20. Nor does the record before the Board support a finding that “nothing in that [part 60] rulemaking discussion suggests that the central basis for the State’s claimed 1E-07 boundary figure – the consequences of an aircraft crash into a storage cask – was outside the scope of the matters considered by the Commission in reaching its bounding conclusion.” *Id.* at 20 (*emphasis added*).

First, a formal rule for a Part 60 facility does not constitute a formal rule for a Part 72 facility. Under the Administrative Procedures Act, 5 U.S.C. § 553(b), (c), and 10 C.F.R. § 2.804, formal rulemaking requires adherence to advance notice and comment procedures. The Commission could have chosen to promulgate a rule for a generic Category 2 design basis accident risk standard applicable to all Part 72 facilities as well as a Part 60 facility. But it did not. Accordingly, the Board erred in finding that the generic  $10^{-6}$  standard in Part 60 applies to Part 72 and that the  $10^{-7}$  standard was not outside the scope of the Commission’s considerations in its Part 60 rulemaking.

The Commission does have the discretion to determine whether a particular issue shall be decided through rulemaking or adjudication, Consumers Power Co. (Midland Plant, Units 1 and 2), LBP-82-118, 16 NRC 2034, 2038 (1982), *citing* Federal Power Comm’n v. Texaco, Inc., 377 U.S. 33, 42-44 (1964), but here the Board inappropriately uses a Part 60 rulemaking proceeding to make a Part 72 summary disposition decision. By so deciding, the Board has completely turned the burden of proof in the summary disposition proceeding

---

<sup>19</sup> Monitored retrievable storage installation.

against the State, the non-moving party. As a matter of law, the Commission should reverse the Board's ruling.

Second, a site-specific analysis of probability, consequences, and risk for the PFS facility leads to a very different result than for the proposed Yucca Mountain facility. This is yet another reason that the  $10^{-7}$  standard – and not the  $10^{-6}$  standard – should apply to the PFS site.

In the course of a rulemaking addressing design basis events for the proposed Yucca Mountain geologic repository, the Commission considered the subject of probability bounds. Final Rule, Disposal of High-Level Radioactive Wastes in Geologic Repositories; Design Basis Events, 61 Fed. Reg. 64257, 64258-64259 (1996). It did so in the context of the bounds that should be used to evaluate impacts from credible accidents at the site for purposes of determining the design of the repository's preclosure controlled area. *Id.* It concluded that only credible accidents that will occur at a frequency of  $10^{-6}$  or greater need be considered. This was not a general pronouncement. It was a site-specific conclusion based on site-specific analyses of risk at the Yucca Mountain facility; the Commission had reviewed risk from lower probability events and concluded those events were not likely to add significantly to risk. See 61 Fed. Reg. 64265-66.

The Commission did not promulgate a rule requiring use of a specified probability bound in any situation. In fact, in discussing the definition of "design basis events,"<sup>20</sup> it

---

<sup>20</sup> It is notable that the discussion of probability bounds is made in the context of evaluating the design of the preclosure area. It is not at all clear that the Commission intended for that discussion to apply to design basis events used for all other purposes. It easily could have done so if it had so intended, as "design basis events" were also defined in the same rulemaking.

explicitly recognized that the question should be answered on a site-specific basis:

The Commission recognizes that the criterion of "sufficiently credible to warrant consideration" is inexact, leaving its application to a consideration of the particular site and design that are the subjects of a license application. Generally, the Commission would expect that such design basis events would include as broad a range of external phenomena as would be taken into account in defining the design basis for other regulated facilities, including nuclear reactors.

61 Fed. Reg. 64263.

As the State described in its Response to PFS's Second Motion, PFS has not and cannot demonstrate, using site-specific analyses, that a standard other than the  $10^{-7}$  standard in NUREG-0800 should apply to the PFS site. State Response at 7-8. In fact, because site-specific analysis of probability, consequences, and risk for the PFS facility leads to a very different result than for the proposed Yucca Mountain facility, it is clear that it would not be appropriate to use a lower standard. See State's Response, Resnikoff Dec. ¶¶ 10-18. Most significantly, the consequences of certain aircraft or related accidents would be extreme, resulting in individual doses of 70 to over 10,000 rem, much higher than the 2.1 rem dose determined for the Yucca Mountain site. *Id.* ¶ 16. The corresponding risk of cancer would be much greater than the  $10^{-8}$  range deemed acceptable in the Commission's rulemaking relied upon by PFS.<sup>21</sup> *Id.* ¶ 17. Accordingly, Part 60 regulations cannot be equated to this

---

<sup>21</sup> The Applicant has also argued that the probability bound guidance for preclosure controlled areas in Part 60 should be used for all aspects of safety analysis for Part 72 because of the Commission's stated desire to harmonize those two parts. The Applicant has overstated the Commission's objectives in that rulemaking. The Commission did express a desire to harmonize the two parts, but spoke only of wanting to add the rigor of the specific dose limits in Part 72 to Part 60, and of making terminology between the two parts more consistent. See Proposed Rule, Disposal of High-Level Radioactive Wastes in Geologic Repositories; Design Basis Events, 60 Fed. Reg. 15180 (1995).

Part 72 PFS facility; at the PFS site, the appropriate standard to be protective of public health and safety is  $10^{-7}$ .

Third, as an alternative to a ruling by the Commission that the  $10^{-7}$  standard applies to the PFS facility, the Commission could remand the issue back to the Board for an evidentiary finding of whether the PFS facility is sufficiently similar to the Yucca Mountain waste storage and handling Part 60 facility that the same generic  $10^{-6}$  standard should apply to both. Currently, the record is devoid of any comparisons between the two facilities. For example, the differences in proposed operations are evident in that spent nuclear fuel will be stored in concrete casks, unprotected on concrete pads at the PFS facility, whereas at Yucca Mountain, spent nuclear fuel will be stored in steel shipping casks inside a building with three to five foot thick walls.<sup>22</sup> Evidence similar to the foregoing must be adduced and considered on the record before a non-arbitrary decision can be made on whether the generic  $10^{-6}$  Part 60 standard applies to the PFS facility.

## CONCLUSION

For the foregoing reasons, the State urges the Commission to reverse the Board's findings and hold the appropriate risk standard for aircraft crashes at the PFS site is  $10^{-7}$ . In the alternative, the State requests the Commission to find that a decision on a protective aircraft crash risk standard is not ripe, that relevant material facts remain in dispute and thus,

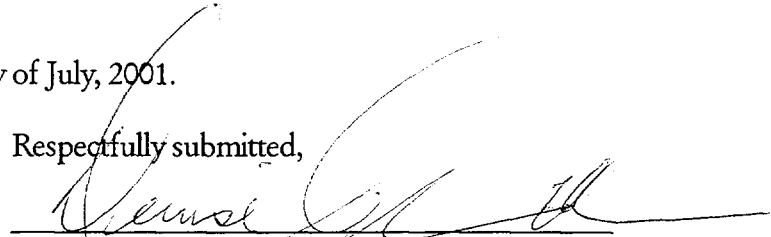
---

<sup>22</sup> Yucca Mountain Science and Engineering Report Technical Information Supporting Site Recommendation Consideration, DOE/RW-0539 (May 2001) at 2-43, -47.

reverse the Board's grant of summary disposition, and remand the issue to the Board for consideration in an adjudicatory hearing.

DATED this 13th day of July, 2001.

Respectfully submitted,



Denise Chancellor, Assistant Attorney General  
Fred G Nelson, Assistant Attorney General  
Connie Nakahara, Special Assistant Attorney General  
Diane Curran, Special Assistant Attorney General  
Laura Lockhart, Assistant Attorney General  
Attorneys for State of Utah  
Utah Attorney General's Office  
160 East 300 South, 5th Floor, Mail Stop 140873  
Salt Lake City, UT 84114-0873  
Telephone: (801) 366-0286, Fax: (801) 366-0292

## CERTIFICATE OF SERVICE

I hereby certify that a copy of STATE OF UTAH'S BRIEF ON THE QUESTION  
CERTIFIED IN LBP-01-19: THE REGULATORY STANDARD FOR AIRCRAFT  
CRASH HAZARDS AT THE PFS SITE - CONTENTION UTAH K (CREDIBLE  
ACCIDENTS) was served on the persons listed below by electronic mail (unless otherwise  
noted) with conforming copies by United States mail first class, this 13<sup>th</sup> day of July, 2001:

Rulemaking & Adjudication Staff  
Secretary of the Commission  
U. S. Nuclear Regulatory Commission  
Washington D.C. 20555  
e-mail: [hearingdocket@nrc.gov](mailto:hearingdocket@nrc.gov)  
(original and two copies)

Richard A. Meserve, Chairman  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16 G15  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738  
e-mail: [chairman@nrc.gov](mailto:chairman@nrc.gov)

Edward McGaffigan, Jr., Commissioner  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16 G15  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738  
e-mail: [sfc@nrc.gov](mailto:sfc@nrc.gov)

Greta J. Dicus, Commissioner  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16 G15  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738  
e-mail: [cmrdicus@nrc.gov](mailto:cmrdicus@nrc.gov)

Nils J. Diaz, Commissioner  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16 G15  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738  
e-mail: [cmrdiaz@nrc.gov](mailto:cmrdiaz@nrc.gov)

Jeffrey S. Merrifield, Commissioner  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16 C1  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738  
e-mail: [jmer@nrc.gov](mailto:jmer@nrc.gov)

G. Paul Bollwerk, III, Chairman  
Administrative Judge  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555  
E-Mail: [gpb@nrc.gov](mailto:gpb@nrc.gov)

Dr. Jerry R. Kline  
Administrative Judge  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555  
E-Mail: [jrk2@nrc.gov](mailto:jrk2@nrc.gov)  
E-Mail: [kjerry@erols.com](mailto:kjerry@erols.com)

Dr. Peter S. Lam  
Administrative Judge  
Atomic Safety and Licensing Board  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555  
E-Mail: psl@nrc.gov

Sherwin E. Turk, Esq.  
Catherine L. Marco, Esq.  
Office of the General Counsel  
Mail Stop - 0-15 B18  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555  
E-Mail: set@nrc.gov  
E-Mail: clm@nrc.gov  
E-Mail: pfscase@nrc.gov

Jay E. Silberg, Esq.  
Ernest L. Blake, Jr., Esq.  
Paul A. Gaukler, Esq.  
Shaw Pittman  
2300 N Street, N. W.  
Washington, DC 20037-8007  
E-Mail: Jay\_Silberg@shawpittman.com  
E-Mail: ernest\_blake@shawpittman.com  
E-Mail: paul\_gaukler@shawpittman.com

John Paul Kennedy, Sr., Esq.  
David W. Tufts  
Durham Jones & Pinegar  
111 East Broadway, Suite 900  
Salt Lake City, Utah 84111  
E-Mail: dtufts@djplaw.com

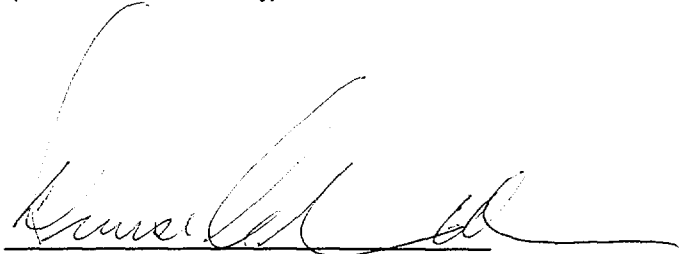
Joro Walker, Esq.  
Land and Water Fund of the Rockies  
1473 South 1100 East, Suite F  
Salt Lake City, Utah 84105  
E-Mail: joro61@inconnect.com

Danny Quintana, Esq.  
Danny Quintana & Associates, P.C.  
68 South Main Street, Suite 600  
Salt Lake City, Utah 84101  
E-Mail: quintana@xmission.com

Samuel E. Shepley, Esq.  
Steadman & Shepley, LC  
550 South 300 West  
Payson, Utah 84651-2808  
E-Mail: Steadman&Shepley@usa.com  
slawfirm@hotmail.com  
DuncanSteadman@mail.com

James M. Cutchin  
Atomic Safety and Licensing Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001  
E-Mail: jmc3@nrc.gov  
(*electronic copy only*)

Office of the Commission Appellate  
Adjudication  
Mail Stop: 16-G-15 OWFN  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555  
(*United States mail only*)



Denise Chancellor  
Assistant Attorney General  
State of Utah