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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

IN THE MATTER OF)
)
PRIVATE FUEL STORAGE L.L.C.)
)
(PRIVATE FUEL STORAGE FACILITY))

DOCKET NO. 72-22

ASLBP NO. 97-732-02-ISFSI

APPLICANT'S RESPONSE TO STATE OF UTAH'S
PETITION FOR REVIEW OF CONTENTION UTAH K

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Commission

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

**APPLICANT'S RESPONSE TO STATE OF UTAH'S
PETITION FOR REVIEW OF CONTENTION UTAH K**

Applicant Private Fuel Storage L.L.C. ("PFS") hereby responds to the State of Utah's Petition for Review¹ of the rulings of the Atomic Safety and Licensing Board ("Board") and the Commission resolving Contention Utah K ("Utah K").² The State does not meet the requirements for Commission review set forth in 10 C.F.R. § 2.786.³ Thus, review should be declined.

I. BACKGROUND

Contention Utah K, admitted in 1998, concerns alleged credible accidents that could affect the Private Fuel Storage Facility ("PFSF"). Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-98-7, 47 NRC 142, 190 (1998). The admitted contention was limited to (1) potential hazards to the PFSF from: (a) the Tekoi Rocket Engine Test Facility, (b) Dugway Proving Ground, (c) civilian and military aviation activities, and (d) wildfires; and (2) potential accidents affecting the PFS intermodal transfer point. LBP-01-19, 53 NRC at 418.

In 1999, the Board dismissed on summary disposition the issues relating to hazards posed by the Tekoi facility, wildfires, hazardous materials at Dugway Proving Ground, and landings at

¹ State of Utah's Petition for Review of Contention Utah K (Aircraft Crashes) (June 13, 2005) ("State Pet.").

² The rulings challenged comprise: Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-05-5, 61 NRC 108 (2005) (aircraft crash consequences—safeguards version—slip op.) ("Final PID"), recons. denied, LBP-05-12, 61 NRC __, slip op. (May 24, 2005); Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-01-19, 53 NRC 416 (2001) (cruise missile hazards, credible accident standard), aff'd in part, CLI-01-22, 54 NRC 255 (2001) (credible accident standard).

³ Citations are to the Commission's prior rules of practice, which are still applicable to this case. See Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-05-01, slip op. (Jan. 5, 2005) at 4 n.5.

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Michael Army Airfield of aircraft carrying “hung bombs” and the X-33 experimental space plane.⁴ It also subsequently dismissed all issues relating to the intermodal transfer point.⁵

In 2001, the Board dismissed on summary disposition issues pertaining to military ordnance usage at Dugway and cruise missile testing on the Utah Test and Training Range (“UTTR”). LBP-01-19, 53 NRC at 422-29. It also resolved in PFS’s favor the hazards posed by commercial and general aviation. *Id.* at 451-52; see also Tr. at 3013-14 (Farrar, J., general aviation). The hazards posed by military aviation in the Skull Valley vicinity were left for hearing. See LBP-01-19, 53 NRC at 455-56. The Board also ruled that the credible accident standard for independent spent fuel storage installations (“ISFSIs”), like the PFSF, is 1 E-6 per year. *Id.* at 431. It referred that ruling to the Commission, *id.*, which affirmed, CLI-01-22, 54 NRC 255.

In 2002, after the NRC Staff had completed its safety review concluding that the hazard was less than the 1 E-6 standard,⁶ an evidentiary hearing (“the probability hearing”) was held on military aviation crash impact probabilities, which focused primarily on the hazard posed by F-16 fighter aircraft transiting Skull Valley.⁷ The Board ultimately found that the cumulative impact probability for military and civilian aircraft crashes and jettisoned military ordnance at the PFS site was 4.71 E-6, which exceeded the 1 E-6 credible accident standard. See *id.* at 77-78, 135.⁸ Therefore, a second evidentiary hearing was necessary to determine whether the probability of an aircraft crash leading to a release of radiation that could cause radiological doses in excess of applicable limits was greater than 1 E-6 per year. Final PID at 4.⁹

⁴ *Id.* at 419; see Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-99-35, 50 NRC 180, recons. denied, LBP-99-39, 50 NRC 232 (1999).

⁵ LBP-01-19, 53 NRC at 419; see Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-99-34, 50 NRC 168 (1999).

⁶ Consolidated Safety Evaluation Report for the PFSF (Mar. 2002) at 15-51, 15-53 (Staff Exh. C).

⁷ Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), LBP-03-04, 57 NRC 69, 76-77 (2003).

⁸ The cumulative probability included accident impact probabilities from: (1) F-16s transiting Skull Valley or using the Moser Recovery Route of 4.45 E-6/yr (LBP-03-04, 57 NRC at 218, 221), (2) other military or civilian aircraft operating in the vicinity of Skull Valley of 5.4 E-8/yr (*id.* at 125-27 (aircraft on the UTTR and IR-420)) LBP-01-19, 53 NRC at 450-52 (civilian aircraft)), and (3) jettisoned ordnance of 2.11 E-7/yr (LBP-03-04, 57 NRC at 229)).

⁹ PFS and the Staff requested Commission review of the Board’s probability ruling. The Commission deferred ruling on the petitions until completion of the consequences evidentiary hearing. CLI-03-05, 57 NRC 279 (2003).

In 2004, the second evidentiary hearing (“the consequences hearing”) was conducted to determine, assuming the probability of an F-16 aircraft crashing into the PFS site, the probability of the crash causing spent fuel cask and canister damage resulting in a radiological release. *Id.* at 5. Both PFS and the Staff sought to focus on the probability of an accident breaching the canister (inside the cask) in which the spent fuel is contained, rather than the radiological dose consequences of a breach. *Id.* After hearing argument from the parties, the Board decided to limit the scope of the hearing to the probability of canister breach. *Id.* at A-15.

The majority of the Board found that the probability of a canister breach leading to a radiological release was less than $7.37 \text{ E-}7$ per year. Final PID at B-36, B-40. That value was PFS’s calculated “unanalyzed event probability” (“UEP”), or the cumulative probability of all possible aircraft crash and jettisoned ordnance impact events for which it had not been shown that no breach of the canister would occur. *See id.* at B-2 to B-4. Moreover, the actual probability of a canister breach was much less than the calculated UEP because of significant conservatism in the analysis. *Id.* at B-37 to B-41. “[A] more refined analysis would result in a lower (and perhaps materially lower) probability of [radiological] release.” *Id.* at B-41.

The State asked the Board to reconsider its decision on several grounds, which it raises again here. *See* LBP-05-12, slip op. at 2-3. The Board denied the State’s request. *Id.* at 29.

II. REQUIREMENTS FOR COMMISSION REVIEW

A petition for review is granted only at the discretion of the Commission, “giving due weight to the existence of a substantial question with respect to the following relevant considerations: (i) a finding of material fact that is “clearly erroneous” or conflicts with a finding as to the same fact in a different proceeding; (ii) a necessary legal conclusion that is “without governing precedent” or “contrary to established law;” (iii) the raising of a “substantial and important” question of law, policy, or discretion;” (iv) “the conduct of the proceeding involved a prejudicial procedural error;” or (v) the raising of “any other considerations which the Commission may deem

to be in the public interest.” 10 C.F.R. § 2.786(b)(4) (emphasis added); Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 17 (2003).

The State’s principal claim is that several of the Board’s decisions were “clearly erroneous.” E.g., State Pet. at 6. The Commission, however, has reiterated in this case that

A clearly erroneous finding is one that is not even plausible in light of the record viewed in its entirety. . . . Although the Commission has the authority to reject or modify a licensing board’s factual finding, it will not do so lightly. We will not overturn a hearing judge’s findings simply because we might have reached a different result.¹⁰

The State fails to show that any of the Board’s findings meet this implausibility test. Thus, the State provides no reason for the Commission to review them and review should be denied.

III. DISCUSSION

A. The Commission’s Aircraft Crash Accident Probability Standard for ISFSIs of 10^{-6} Per Year Was Properly Established and Is Res Judicata

The State attempts to challenge the 1 E-6 per year “credible accident” standard established by the Commission for ISFSIs in CLI-01-22.¹¹ State Pet. at 2-6. However, the standard is res judicata and the State’s challenges are meritless and thus they should be rejected.

1. The Commission’s 10^{-6} Standard is Res Judicata

The 1 E-6 standard is res judicata. The State argued the standard before the Board in opposing PFS’s 2000 motion for summary disposition, see LBP-01-19, 53 NRC at 430-31, and before the Commission when the Board certified its ruling to the Commission, see CLI-01-22, 54 NRC at 263. The Commission decided the issue and thus the State should not be heard again.

The doctrines of res judicata and collateral estoppel preclude “the relitigation of issues of law or fact which have been finally adjudicated by a tribunal of competent jurisdiction in a proceeding involving the same parties or their privies.”¹² Thus, “those who have contested an issue

¹⁰ CLI-05-01, slip op. at 22 (emphasis added) (quoting Tennessee Valley Authority (Watts Bar Nuclear Plant, Unit 1), CLI-04-24, 60 NRC 160, 189 (2004)).

¹¹ Credible accidents, also known as “design basis events” or “design basis accidents,” consist of accidents that a NRC-licensed facility must be designed to withstand without exceeding prescribed radiation dose limits. Id. at 259.

¹² Toledo Edison Co. (Davis-Besse Nuclear Power Station, Units 1, 2, and 3), ALAB-378, 5 NRC 557, 561 (1977) (citations omitted).

shall be bound by the result of the contest, and . . . matters once tried shall be considered forever settled as between the parties.”¹³ Here, the issue of the 1 E-6 standard was fully adjudicated in CLI-01-22. Hence, the State is bound by that ruling and cannot now reargue its case.¹⁴

Finally, the Board certified the question of the standard to the Commission to permit all subsequent probability analysis to be done with the proper standard in mind. LBP-01-19, 53 NRC at 431 & n.5. Given all parties’ great investment of resources in the probability analyses over the last eight years, it would be manifestly unfair to consider at this late date the State’s argument as to why the standard was wrong and all of the analyses must be redone.

2. The Commission’s 10⁻⁶ Standard Was Properly Established

The Commission should also reject the State’s challenges to the 1 E-6 credible accident standard, State Pet. at 2-6, on substantive grounds, as they wholly lack merit.

The State first claims that the Commission established the standard “arbitrarily and without technical support” because it did not have available to it estimated radiological dose consequences for possible ISFSI accidents. See id. at 3-4; see also id. at 5-6. The State’s arguments are misplaced. The Commission’s CLI-01-22 decision certainly was not arbitrary. The Commission held that the credible accident standard for ISFSIs was 1 E-6 per year because it had previously determined in a 10 C.F.R. Part 60 rulemaking that the design bases under 10 C.F.R. Part 72 (for ISFSIs) and Part 60 (for surface operations at a geologic repository) should be the same and that the Part 60 credible accident standard is 1 E-6 per year. CLI-01-22, 54 NRC at 261, 264 (citing 61 Fed. Reg. 64,257, 64,263, 64,265 (1996)¹⁵).

Nor did the Commission’s CLI-01-22 decision lack technical support. In the statement of consideration accompanying the 1996 rulemaking, the Commission stated that, “[b]ecause opera-

¹³ Alabama Power Co. (Joseph M. Farley Nuclear Plant, Units 1 and 2), ALAB-182, 7 AEC 210, 212-13, remanded on other grounds, CLI-74-12, 7 AEC 203 (1974). (quoting Baldwin v. Iowa State Traveling Men’s Ass’n, 283 U.S. 522, 525 (1931)).

¹⁴ The State’s arguments may not be treated merely as a request for reconsideration of CLI-01-22, in that petitions for reconsideration are due within 10 days of the decision challenged, 10 C.F.R. § 2.771, not nearly four years afterwards. See, e.g., Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1), CLI-88-3, 28 NRC 1, 2 (1988) (denying petition nine days late).

¹⁵ Disposal of High Level Radioactive Wastes in Geologic Repositories, Design Basis Events, Final Rule.

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tions at the repository are expected to be similar to operations at other facilities licensed by the Commission (e.g., 10 C.F.R. part 72 facilities), the Commission believes that it is appropriate that their design bases be comparable.” 61 Fed. Reg. at 64,262, quoted in CLI-01-22, 54 NRC at 262. Similarly, the Commission “harmonize[d] part 60 with part 72” because “part 72 applies to those facilities (MRS [monitored retrievable storage] installations) most similar to the surface facilities of a repository and for which the kinds of design basis events are also expected to be similar.” 61 Fed. Reg. at 64,265; see CLI-01-22, 54 NRC at 264. Therefore, it was entirely reasonable to apply the same design basis accident standard to both Part 60 and Part 72.

The fact that the Commission did not specifically cite estimated radiological dose consequences for possible ISFSI accidents is irrelevant. The State acknowledges that the Commission considered many possible repository surface facility accidents when establishing the Part 60 standard. See State Pet. at 4 (citing 61 Fed. Reg. at 64,265). They included accidents similar to what could occur at an ISFSI, e.g., “waste transporter collisions, crane failures or other types of . . . waste package or cask drop events . . . , earthquakes, tornadoes, and flooding.” 61 Fed. Reg. at 64,266. Moreover, the specific examples were intended to “provide perspective on the magnitude of the estimated consequences to members of the public from postulated Category 2 design basis events, and . . . variations in repository design or site selection would not likely vary these estimates by more than an order of magnitude.” *Id.* (emphasis added). Furthermore, the Commission’s Part 60 standard was based on bounding, rather than realistic, estimated accident consequences. CLI-01-22, 54 NRC at 261 (quoting 61 Fed. Reg. at 64,265). Indeed, accident risk at the PFSF would be lower than at surface facilities at a repository or an MRS installation because spent fuel processing and repackaging will not happen at the PFSF.¹⁶ If the facilities and operations at Part 60 and Part 72 facilities are similar, and the possible accidents are similar, then the consequences that could potentially occur at those facilities are also similar. See CLI-01-22, 54 NRC at 265 n.42 (comparing potential ISFSI and repository surface facility accident conse-

¹⁶ See Emergency Planning Licensing Requirements for Independent Spent Fuel Storage Facilities (ISFSI) and Monitored Retrievable Storage Facilities (MRS), Proposed Rule, 58 Fed. Reg. 29,795, 29,797 (May 24, 1993).

quences). Thus, it was entirely appropriate for the Commission to rely on bounding accident consequence estimates made for Part 60 facilities to establish a Part 72 accident standard.¹⁷

Finally, the State's claim lacks materiality, because the 1 E-6 standard itself contains two orders of magnitude of conservatism that the State's bare claims do not overcome, let alone reference. In establishing the Part 60 1 E-6 standard, the Commission noted that design basis accidents under the standard would give rise to an approximately 1 E-8 per year risk of cancer to a member of the public from radiation exposure from a facility. 61 Fed. Reg. at 64,265. However, as a matter of policy, the publicly acceptable cancer risk from radiation exposure from a facility is "in the range of 1×10^{-6} to 1×10^{-5} per year." *Id.* Thus, the 1 E-6 standard "is expected to provide conservative estimates of risk" and "[a] higher screening criterion could probably be justified given the magnitude of the consequences and risks" *Id.* Indeed, it follows that the standard could be as high as 1 E-4 and still meet the Commission's policy objective. That conservatism is more than sufficient to overcome any accident risk uncertainties arising from differences between repository surface facilities and ISFSIs alleged to exist by the State.

The State's second claim of error is that the Commission failed to consider the possibility that the standard should be something other than 1 E-6 or 1 E-7 per year. State Pet. at 4. The State correctly recounts the Commission's decision, but it was no error. As noted, because of the similarity between Part 60 and Part 72 facilities and operations and hence their potential accident consequences, the Commission determined that the credible accident standards for Part 60 and Part 72 should be the same. Given the similarities between the facilities, the Commission would have had no reason for establishing different standards for them. Moreover, when the State argued the standard before the Board and the Commission in 2001, it never asserted that it should be anything other than 1 E-7 per year.¹⁸ Therefore, the State is barred from doing so now.¹⁹

¹⁷ The State asserted that the accident standard should be 1 E-7 per year, as it is for nuclear power plants, but the Commission explained that potential accident consequences associate with an ISFSI are much less severe than those associated with a power plant. *See* CLI-01-22, 54 NRC at 264-65.

¹⁸ *See* State of Utah's Response to Applicant's Motion for Summary Disposition on Utah Contention K/Confederated Tribes Contention B (Jan. 30, 2001) at 6-8; State of Utah's Brief on the Question Certified in LBP-

The State's third claim is that "PFS provided no technical supporting evidence that 10^{-6} will be sufficiently protective of public health and safety." State Pet. at 5. But PFS did not need to provide its own technical support as the Commission established the appropriate standard.²⁰

Finally, the State asserted that unlike the Department of Energy ("DOE") and the Yucca Mountain proposed geologic repository site, PFS cannot control the airspace over the PFS site and thus cannot control the number of or nature of flights over the site. State Pet. at 6. The State's argument is irrelevant. The number or nature of flights over the PFSF goes to the probability of a crash occurring at the site, not the standard under which one must evaluate whether the crash probability is low enough to be acceptable. See LBP-03-04, 57 NRC at 112-13.

B. The Board's Decision on Cruise Missile Testing Was Not Clearly Erroneous or Contrary to Law

The State alleges that the Board's aircraft crash probability finding was understated because the probability of a cruise missile crash was not added to it. State Pet. at 6-7.²¹ The State claims that the probabilities must be added and only then compared to the accident standard for ISFSIs, even though the Board found that a cruise missile crash at the PFS site is not a credible event. Id. at 7-8. The State asserts that PFS never provided a "statistical probability value" for a cruise missile crash and that the material facts advanced by PFS on summary disposition do not claim a zero probability. Id. The State then advocates a cruise missile crash probability based on its previous arguments to the Board and asserts that the cumulative cruise missile and aircraft crash probability exceeds $1 \text{ E-}6$. See id. at 8-10.

01-19: the Regulatory Standard for Aircraft Crash Hazards at the PFS Site – Contention Utah K (Credible Accidents) (July 13, 2001).

¹⁹ E.g., Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-00-21, 52 NRC 261, 264 (2000).

²⁰ In fact, PFS did cite "technical supporting evidence" in its brief to the Commission. See Applicant's Brief on the Regulatory Standard for Aircraft Crash Hazards at the Private Fuel Storage Facility (July 13, 2001) at 7-11.

²¹ The aircraft crash probability here is the UEP, or calculated upper bound on the probability of an aircraft crash leading to a cask breach. See State Pet. at 10 & n. 19 (citing Final PID at B-36 to 37).

The State's arguments are fatally flawed. First, based on the evidentiary record, the probability of a cruise missile crash at the PFSF is essentially zero and thus, even added to the Board's aircraft crash probability, it would not change the outcome. The Board stated that

PFS has asserted, based on sworn descriptions of discussions with Air Force officials, that the cruise missiles that have crashed have not strayed more than 1 mile from their planned flight path. Further, PFS has declared, based on these discussions, that being aware of inhabited areas around the PFS facility, Air Force planners will not establish cruise missile flight paths any closer than 10 nautical miles from the facility, thus providing a significant temporal buffer for [flight termination system] activation if a cruise missile should suddenly go awry during a test, thereby making such an incident extremely unlikely. Nothing provided by the State creates a material factual dispute with this conclusion.

LBP-01-19, 53 NRC at 427-28 (emphasis added).

The Board's conclusion is unequivocally supported by the evidence. See Declaration of George Wagner and David Girman (Dec. 30, 2000) ¶¶ 23 (no flight paths planned within 10 nautical miles of PFS site), 19 (Air Force office responsible for cruise missile testing for 20 years unaware of any cruise missile impacts into the ground more than one-quarter mile from planned flight path); see also id. ¶ 20 (all missiles constantly tracked in flight and their flight can be terminated by test observers). Thus, PFS's witnesses concluded that "Cruise missile testing will pose no hazard to the PFSF." Id. ¶ 27 (emphasis added).

The State attempted to calculate a probability that a cruise missile would hit the PFS site based on information concerning cruise missile crashes on the UTTR and assumptions about where a missile could fly before it crashed. See LBP-01-19, 53 NRC at 425-26. However, the Board found that those assumptions "d[id] not reflect any recognition of the PFS showing regarding planning for, and the operation of, cruise missile tests over the past decade." Id. at 428.²² Thus, they were "speculative to the degree they [were] asserted to show anything about the danger posed to the PFS facility by [cruise missile] crashes." Id. Therefore, there was "no

²² The State notes the employment of cruise missile flight termination systems on the UTTR and asserts that crashes in which the system was not employed were "out of control." See State Pet. at 8-9. It then attempts to estimate a cruise missile impact probability using a formula for estimating aircraft crash impact probabilities. See id. at 9-10. However, the State has simply ignored the uncontroverted statements by Air Force officials that all cruise missile impact points have been very close to the missiles' planned flight paths.

genuine dispute of material fact.” *Id.* Thus, as PFS stated, potential cruise missile crashes “will pose no hazard to the PFSF.” Hence, the State’s arguments concerning cruise missiles do not show that the Board’s Final PID, which dismissed Contention Utah K, was clearly erroneous.

Second, the State is wrong as a matter of law when it asserts that the cruise missile accident probability must be added to the aircraft crash probability. NRC regulations allow accidents of different types to be assessed separately when determining whether they are credible. The Commission stated that, “[s]creening out events with probabilities of less than 1×10^{-6} is expected to provide conservative estimates of risk.” 61 Fed. Reg. at 64,265 (emphasis added).²³ “Assuming bounding repository event consequences, . . . the estimated risk of cancer fatality from these low probability events would be 1×10^{-8} per year. Events which result in risks at or below this level [such as cruise missile crashes at the PFSF] do not contribute significantly to repository risk to an individual and, as such, can be neglected in the overall risk assessment.” *Id.* at 64,265-66. The discussion speaks entirely in terms of screening out events with probabilities less than 1 E-6, not events with a cumulative probability less than 1 E-6, as sought by the State.

C. The Board’s Aircraft Crash Consequences Decision Was Not Clearly Erroneous or Contrary to Law

The State’s petition raises the same four issues it raised in requesting reconsideration of the Board majority’s aircraft crash consequences decision. After extensive argument and careful consideration, the Board firmly rejected the State’s request.²⁴ The State points to nothing showing clear error by the Board. Thus, the State’s petition must be denied.

1. The Board Did Not Improperly Foreclose Consideration of Excessive Radiation Consequences Resulting from a Loss of Radiological Shielding Due to Overpack Damage

The State claims that the Board erred in assertedly “foreclosing the issue of excessive radiation consequences” due to a loss of radiological shielding resulting from damage to the cask

²³ This statement was made in promulgating the Part 60 standard, but is also applicable to ISFSIs under Part 72. CLI-01-22, 54 NRC at 264.

²⁴ In addition, the State’s petition for review challenges the conservatisms in the UEP as calculated by PFS and adopted by the Board. As discussed in Section III.D *infra*, the State’s arguments are meritless.

overpack without a canister breach.²⁵ State Pet. at 11. However, the Board clearly (and unani-
mously) demonstrated that the first time the State ever raised that issue was in requesting recon-
sideration of the Final PID. LBP-05-12, slip op. at 9-13. Nowhere did the State ever previously
assert that a loss of radiological shielding from the cask overpack would cause radiation doses in
excess of the 5 rem accident limit. Id. at 11-12 & n.13. Indeed, in the State's proposed findings
of fact – filed in October 2004 – the State expressly declared that “the broad issue for the Board
to decide is whether PFS has proven that [the probability of] a release of radioactive material . . .
is less than one in a million.”²⁶ Thus, the State's allegation that the Board foreclosed considera-
tion of the issue is merely a post hoc attempt to manufacture reversible error where none exists.

Supreme Court and NRC precedent are clear. “While an applicant has the burden of
proof on any issues on which an hearing is held, hearings are held on only those issues that an in-
tervenor brings to the fore.” LBP-05-12, slip op. at 9-10. Further, “the burden of going forward
on any issues which make it to the hearing process is on the intervenor which is pursuing that is-
sue.” Id. at 10. The Supreme Court in Vermont Yankee made clear that:

it is still incumbent upon intervenors who wish to participate to structure their
participation so that it is meaningful, so that it alerts the agency to the intervenors'
position and contentions. * * * * * Indeed, administrative proceedings should
not be a game or a forum to engage in unjustified obstructionism by making cryp-
tic and obscure reference to matters that “ought to be” considered and then, after
failing to do more to bring the matter to the agency's attention, seeking to have
that agency determination vacated on the ground that the agency failed to consider
matters “forcefully presented.”²⁷

²⁵ The spent fuel casks at the PFSF will consist of a sealed multi-purpose stainless steel canister (“MPC”), contain-
ing the spent fuel, inside a thick, concrete and steel cask overpack with air vents to allow natural air circulation to
cool the canister. See Staff Exh C, Consolidated Safety Evaluation Report (Mar. 2002) at 1-2.

²⁶ State of Utah's Proposed Findings of Fact and Conclusion of Law on the Phase II Hearing of Contention Utah
K/Confederated Tribes B (Cask Breach Probability), (Oct. 28, 2004) (“State F.”) at 8 (emphasis added). See also
e.g., id. at 20-23 (repeatedly referring to the “release of radioactive material” or “containment of the radioactive ma-
terial” as the issue before the Board here).

²⁷ Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553-54 (1978) (citations omitted); see also Met-
ropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 1), ALAB-697, 16 NRC 1265, 1271 (1982) (in-
tervenors cannot argue on appeal that matter was not addressed below without having provided “some basis for fur-
ther inquiry”).

Here, the State did not even make “cryptic and obscure reference” to the issue prior to its motion for reconsideration. The Board made repeated, fruitless inquiries of the State to identify where it had ever previously raised this issue, but no such identification was ever forthcoming.²⁸ Rather, the issue raised by the State was whether the probability of “a release of radioactive materials” caused by the breach of a canister is less than 1 E-6 per year. Neither the Board nor the other parties (PFS and the Staff) “had notice” of any need to address an asserted loss of shielding in the cask overpack causing excessive radiation doses. LBP-05-12, slip op. at 12.

The State claims that it met its burden of going forward by producing expert reports in the fall of 2003 concerning, *inter alia*, cask breach and radiation dose consequences. State Pet. at 12. A review of the record, however, shows that the only issue raised and litigated was whether an aircraft crash would breach the canister and release radioactive material into the environment. PFS (and the Staff) consistently asserted that the probability of such event was less than 1 E-6 per year, and hence not credible.²⁹ Likewise, the State’s reports solely concerned canister breach and release of radioactive material and never raised the possibility of increased radiation dose due to loss of shielding.³⁰

Based on this development of the issues, and after argument on whether radiation dose consequences should be deferred to be heard later if necessary, the Board framed the determination of whether an aircraft crash is a credible event “as having three parts”:

²⁸ See, e.g., LBP-05-12, slip op. at 11 n. 13; Further Memorandum Regarding Oral Argument (Mar. 30, 2005) at 2.

²⁹ See, e.g., PFS Exh. 265, Expert Report by Dr. Allin C. Cornell, Rev. 1 (Jan. 2004) at 4-5 (focusing on probability of “radiological release”). Structural analyses performed by Holtec International did not involve loss of overpack shielding in any respect. See PFS Exh. 257.

³⁰ The State’s September 2003 Structural Report (State Exh. 227) focused on breach of the MPC and assessed material stresses from which it repeatedly inferred breach of the MPC. See State Exh. 227. However, it produced no assessment of cask overpack damage and alleged no loss of shielding causing radiation doses. Further and conclusively, the State’s radiological dose report (State Exh. 281) – entitled “Radiation Dose from Potential Accidental Release of Radioactive Material at the Proposed PFS Facility” – assessed the dose arising from holes assumed to be created in the wall of the MPC and the resulting release of radioactive material into the environment. Nowhere did it assert excessive radiation doses due to cask overpack damage without canister breach. The other State report regarding radiological consequences concerned accidental spent fuel criticality (State Exh. 282) and also never raised the issue of the loss of overpack shielding.

the probability of a crash into the site (already decided); the probability that such a crash will rupture a cask; and the dose consequences of the resulting radiological release.

Board April 15, 2004 Order at 2 (emphasis in original). Because resolution of the probability of cask rupture could obviate any need to consider the resulting dose consequences, the Board, ruled that this phase of the hearing would be limited to cask rupture. Id.; see also LBP-05-12, slip op. at 9-10. Nevertheless, the Board allowed the State to make an offer of proof on dose. Thus, the Board's April 15, 2004 order clearly defined the issue for this phase of the hearing as cask breach/rupture, and not loss of radiological shielding. The dose consequences of any "resulting radiological release" would be for the next phase of the hearing.

The whole time, the State never objected to Board's framing of the issues nor otherwise sought to raise loss of shielding in the pre-hearing process, the hearing itself, or the post-hearing findings. Nor, importantly, did the State claim in its offer of proof that loss of shielding would cause excessive radiation doses.³¹ Indeed, the Board's review of the record revealed that the term "shielding" was never used by any of the parties prior to the State's filing of its motion for reconsideration. Tr. at 19,717, 19,735-36 (Farrar, J.); see also Tr. at 19,794 (Abramson, J.).

Viewed against this backdrop, the arguments raised by the State's Petition are clearly meritless. The State claims that the Board erroneously "attempts to impute that the 'cask breach' issue in Hearing II was 'recognized by all to mean a puncture of the internal canister.'" State Pet. at 13. However, the Board's April 15, 2004 order, clearly describes the second part of the aircraft hazard issue as concerning the "rupture [of] a cask" and the third part as the "dose consequences of the resulting radiological release." The breach of the canister is the only way to

³¹ State of Utah's Offer of Proof of Consequences and Criticality Contention Utah K/Confederated Tribes B (Sept. 12, 2004) ("Offer"). The State's claim that the Offer was not its "full development of radiation dose evidence" (State Pet. at 16 n. 35) is belied by its emphatic statements to the Board in the March 30, 2004 prehearing conference that it was prepared to go to hearing on radiation dose consequences. Tr. at 14,597-98. Also, while the State points to statements in the Offer concerning alleged breaches of different barriers (State Pet. at 16 n. 35), it ignores that the Offer only claimed "excessive radiation doses" caused by a potential breach of the MPC (Offer at 4) and that the expert reports attached to the Offer were solely limited to the radiation dose and criticality consequences assertedly resulting from a breach of the MPC. See State Exhs. 281 & 282 discussed in note 30 supra.

cause a radiological release. The State simply ignores the Board’s order clearly showing that the focus of the entire proceeding was on the probability of the release of radioactive materials.³²

The State also argues that all parties assessed the strains in the cask overpack steel liners and failure of the overpack. State Pet. at 15. However, such consideration was in the context of whether failure of the cask overpack could lead to breach of the MPC.³³ Even in that context, the State fails to cite anything in the record suggesting that loss of overpack shielding was an issue.

Lastly, the State argues that the legal standard for credible accidents cannot be waived by any party. See State Pet. at 12. There is, however, no such waiver here. The role of the Board is to resolve challenges to the license application properly raised in the licensing proceeding, not to rule on other possible question not so raised.³⁴ The Board resolved the only properly raised issue here – the probability of a radiological release caused by an aircraft crash – under the appropriate legal standard. Because the State never raised the loss of shielding issue (let alone properly), the Board did not substantively resolve it. No waiver whatsoever was involved.

Finally, notwithstanding the foregoing, cask overpack damage and loss of shielding is highly unlikely to cause NRC radiation dose limits to be exceeded.³⁵ PFS has calculated, and the NRC Staff has reviewed and approved, the annual radiation dose to a person at the site boundary assuming 4,000 casks at the PFSF. This dose is approximately 5 millirem per year – three orders of magnitude below the below the 5 rem accident limit. See Staff Exh. C at 7-6. The immaterial

³² The State also challenges the Board’s reference to “how ‘counsel for the Applicant argued forcefully’ that the issue in Hearing II was limited to canister breach.” State Pet. at 14 n. 30 (citing LBP-05-12, slip op. at 12). In fact, the sole focus of the cited discussion by the Board, counsel for Applicant and PFS witness, Dr. Soler, was what would constitute a canister breach. See Tr. at 15674-84. Counsel for Applicant clearly stated PFS’s position throughout this phase of the proceeding, that “if we have an MPC that doesn’t [breach] . . . we don’t have 5 [rems] at the fence.” Id. at 15,681; see also id. at 15,681-82. Thus, as the Board stated, the State should have argued then, but never did, that loss of radiological shielding in the cask overpack was at issue.

³³ E.g., Applicant’s Proposed Findings of Fact and Conclusions of Law on the Probability of Aircraft or Jettisoned Ordnance Impact Consequences Contention Utah K/Confederated Tribes B (Oct. 28, 2004) (“PFS F.”) at 239-41.

³⁴ See Statement of Policy on Conduct of Adjudicatory Proceedings, CLI-98-12, 48 NRC 18, 22-23 (1998) (issues to be raised sua sponte only “in extraordinary circumstances”).

³⁵ The parties’ analyses showed that *****

See Applicant’s Opposition to Motion for Reconsideration of Partial Initial Decision Regarding F-16 Aircraft Accident Consequences (Mar. 21, 2005) at 3-4 & n. 8. Such minimal degradation of the cask overpack would pose no threat to public health and safety. See id. at 4 & n. 9, in particular Staff Exh. FF cited in note 9.

degradation of the cask overpack that would result from an aircraft impact would not change this result. Moreover, as noted by the Board (LBP-05-12, slip op. at 13), PFS's ability to shield a cask after an aircraft crash clearly obviates any concern in this respect.

In short, loss of radiological shielding in the overpack was never raised by the State, and, at this late date, it is an inappropriate basis for Commission review.

2. The State's Claims that the Board Arbitrarily Rejected the DOE Standard and Arbitrarily Failed to Adopt Any Failure Strain Standard Are Meritless

The State claims that the Board "arbitrarily rejected applying the DOE Standard"³⁶ to evaluate whether strains observed in the MPC would cause the MPC to fail and further "arbitrarily set[] no standard to evaluate failure strains." State Pet. at 17, 19. Both claims lack merit.

The Board majority determined that the MPC would not fail under the conditions analyzed by the parties because the maximum true tensile strains projected in the canister were more than a factor of ***** below the true tensile strain at which material test data showed that the MPC's stainless steel would fail. Final PID at B-18; see LBP-05-12, slip op. at 16-17. First, all parties analyzed the effects of an F-16 impact on a spent fuel cask and found that the maximum true tensile strains in the MPC produced by the impact would be less than *** percent. Final PID at B-5 to B-7. Second, PFS and the NRC Staff presented experimental data and physical examples showing that the MPC stainless steel "can undergo approximately 90 percent true strain before it fails by rupture." Id. at B-13. The State did not challenge PFS's or the Staff's data, but alleged – without experimental evidence – that the steel would not perform as it did in the experiments because of weaknesses that would allegedly be induced by component manufacturing or welding. Id. at B-13 to B-14.³⁷ PFS and the Staff refuted the allegations by noting that the canister will be fabricated and welded under the requirements of the ASME Code specifically to ensure that these weaknesses would not be induced. Id. at B-14. Thus, the majority's finding

³⁶ U.S. Department of Energy, DOE Standard, Accident Analysis for Aircraft Crash Into Hazardous Facilities, DOE-STD-3014-96 (Oct. 1996) (State Exh. 254). The State claims that the standard prescribes a defined maximum strain above which a component (i.e., the MPC) must be assumed to fail. Final PID at B-10.

³⁷ Thus, bare claims by the State's witness that the DOE Standard should be applied because it would be more "rigorous," State Pet. at 17 n. 37 (citing Tr. at 16,249-50 (Sozen)), are simply baseless and entitled to no weight.

that the MPC would not fail under the conditions analyzed by PFS and the Staff is fully supported by the evidentiary record.

a. **The Board Properly Rejected Application of the DOE Standard's Ductility Ratios Urged by the State as the Basis for Determining Failure**

The State asserts that the Board majority improperly failed to apply the ductility ratios³⁸ the State advocated from the DOE Standard because the Board overlooked allegedly critical evidence concerning the scope of the Standard. State Pet. at 17-19. Specifically, the State now asserts that a ratio of 10³⁹ should be used to determine the point at which the MPC would fail in the event of an aircraft impact. *Id.* at 18. However, the majority squarely addressed and rejected identical arguments in its Final PID and in denying the State's request for reconsideration. *See* Final PID at B-12 to B-13; LBP-05-12, slip op. at 16-18. The State's Petition raises nothing new.

As the majority put it, "there was no justification for us to adopt a standard ductility ratio, developed for other situations, when that standard ratio was not shown to be relevant to, or derived from experiments about, the peculiar types of failures at issue here." LBP-05-12, slip op. at 18. The ductility ratio of 10 now advocated by the State would correspond to a failure strain of 1.25%. In stark contrast, the experimental data submitted by PFS and the Staff showed that the failure strain of stainless steel in tension was over 90%. *Id.* at 17 & n.28.⁴⁰ While the State could have used a ductility ratio to express the failure strain in tension indicated by the experimental data, it did not. *See id.* at 17-18. Rather, it chose a ratio appropriate to assess the capa-

³⁸ A ductility ratio is "a measure of the displacement observed under particular conditions compared to the maximum elastic displacement which could occur in the material at issue." LBP-05-12, slip op. at 17 (citing State Exh. 254 at 76).

³⁹ Before the Board below the State had advocated use of a ratio of 20. *See id.*; Final PID at B-11 (ratio corresponding to 2.5% true strain).

⁴⁰ Compressive strains would not pose a threat to rupture to a pressure vessel like the MPC. *E.g.* Surrebuttal Testimony of Alan I. Soler and Charles J. McMahon, Jr. on the Structural Effects of a Potential F-16 Impact on a Spent Fuel Cask – Contention Utah K/Confederated Tribes B (Aug. 9, 2004) ("Soler/McMahon Surreb.") at 6-7; Tr. at 17,125-29 (Bjorkman) (effect of compressive strains).

bility of a structure to carry loads and resist failure in a buckling mode,⁴¹ but not to assess the point at which a steel component would fail in tension. Final PID at B-12 & B-13 & n.95.

The State's first specific claim is that the majority erroneously relied upon the exclusion of pressure vessels by the ANSI/AISC Standard applicable to steel structures⁴² in declining to apply the ductility ratio from the DOE Standard advocated by the State. State Pet. at 17-18. The State argues that the DOE Standard is generally applicable to pressure vessels. See id. at 17-18 & n. 38.

The State's argument is a non sequitur. The issue is not whether the DOE Standard generally applies to pressure vessels, but whether the ductility ratio from the Standard advocated by the State is applicable to assessing the failure of the MPC in the event of an aircraft impact. The introduction to the DOE Standard and pages from Appendix D cited by the State, see State Pet. at 18-19 & n.38, are irrelevant to the application of the State's ductility ratio. The DOE Standard describes a general methodology for evaluating hazards from aircraft crashes, from characterizing the crash impact probability to assessing the effects of hazardous material release after a crash. Indeed, Appendix D concerns the effects of material release, and has nothing to do with determining the strains at which a pressure vessel would fail in the event of an impact.

Furthermore, the State mischaracterizes the DOE Standard when it asserts that the Standard "itself" states that "pressure vessels . . . which consist of welded steel plates are subject to the DOE Standard ductility ratio of ten for plate structures." See State Pet. at 18. The section of the Standard the State cites does not refer to pressure vessels. It simply applies a ductility ratio of 10 for the global failure evaluation of "plate structures" but neither identifies the types of

⁴¹ The DOE Standard's ductility ratios are used to determine global failure of a structure due to "collapse" or "excessive" structural deformation." State Exh. 254 at 14, 70-76. The DOE Standard uses different criteria for local damage in determining whether an aircraft would penetrate or perforate a structure. Id. at 64-70; see also Rebuttal Testimony of Alan I. Soler and Charles J. McMahon, Jr. on the Structural Effects of a Potential F-16 Impact on a Spent Fuel Cask – Contention Utah K/Confederated Tribes B (July 29, 2004) ("Soler/McMahon Reb.") at 16.

⁴² "Specification for the Design, Fabrication and Erection of Steel Safety-Related Structures for Nuclear Facilities," prepared by the American Institute of Steel Construction and approved as ANSI Standard N690 ("ANSI/AISC Standard") at Section Q1.0.4 (PFS Exh. 295). That standard provides the technical basis for the ductility ratios found in the DOE Standard and it states that it is not applicable to pressure vessels. Final PID at B-12 & n.91.

structures to which this ratio would apply nor suggests in any way that it would apply to pressure vessels. However, as described by NRC Staff expert witness Dr. Bjorkman, a plate structure is wholly unlike, and much weaker than, a cylindrical shell structure such as the MPC or cask overpack. Tr. at 16,829, 17,256 (Bjorkman). Moreover, as stated above, the purpose of the DOE ductility ratios are to evaluate the global capability of a structure to carry loads, which is not the relevant issue here. The relevant issue is the point at which the MPC would fail by rupture. See Tr. at 16,836, 17,151 (Bjorkman); see also PFS F. at 161-62; PFS Reply F. at 65-67;⁴³ Final PID at B-12 to B-13; LBP-05-12, slip op. at 16-17.⁴⁴

The State next claims that the Board erred in concluding that the ductility ratios of the DOE Standard were “developed with a clear focus upon ‘structural’ members, which are made of carbon steel, not stainless steel,” because the DOE Standard is generally applicable and it is intended to cover all steel structures. State Pet. at 18 (quoting Final PID at B-12). As noted above, (1) the alleged general applicability of the DOE Standard is irrelevant, and (2) contrary to the State’s claims, the DOE ductility ratios are intended to be applied to evaluate the capability of structural members to carry loads rather than evaluate free-standing (i.e. non-load bearing) pressure vessels. Final PID at B-12 nn. 93-94; see also PFS F at 159 (¶ 232), 161-62 (¶¶ 238-40). In this respect, the philosophies of the codes governing pressure vessel design (e.g., the ASME Code) are fundamentally different than those of the codes governing structural design (e.g., the AISC Code, source of the DOE Standard ductility ratios). Soler/McMahon Reb. at 13-16.

Finally, the State claims that the majority erred in concluding that the DOE Standard’s ductility ratios cannot be used to assess the potential failure of a steel vessel by rupture. State Pet. at 19. The State infers from DOE Standard Appendix D’s depiction of steel vessels that had “ruptured” that a ductility ratio of 10 should be applied to the MPC. See id. The State’s argu-

⁴³ Applicant’s Reply to the Proposed Findings of Fact and Conclusions of Law of the State of Utah and the Nuclear Regulatory Commission Staff on the Probability of Aircraft or Jettisoned Ordnance Impact Consequences Contention Utah K/Confederated Tribes B (Nov.19, 2004) (“PFS Reply F.”).

⁴⁴ Indeed, to evaluate potential failure of a steel vessel in tension upon an aircraft impact (by puncture), the DOE Standard applies a different methodology that would allow strains far in excess of those represented by the ductility ratio advocated by the State. Soler/McMahon Reb. at 15-16; Tr. at 17,321-25, 17,329 (Soler).

ment is irrelevant – Appendix D concerns the consequences of hazardous material releases once it has been determined that a failure has occurred, and has nothing to do with assessing component failure or the applicability of the ductility ratios advocated by the State.⁴⁵ In sum, the State’s arguments fail to show that the Board clearly erred in declining to accept the State’s ductility ratio.

b. The Board’s Evaluation of Failure Strains Is Supported by the Record

The State claims that the Board majority erred in failing to adopt a “strain limit” upon which “to judge the failure” of the MPC and it attacks the data relied on by the majority to determine that the MPC would not fail. State Pet. at 19. The majority, however, committed no error.

First, the majority clearly defined the technical basis for its finding that the MPC would not fail. Material test data for stainless steel showed that the strains in the MPC predicted in the event of an aircraft crash would be more than a factor of **** below the failure strain. Final PID at B-18; see LBP-05-12, slip op. at 16-17. Based on this fundamental material property of the MPC’s stainless steel – as well as other extensive evidence that stainless steel can undergo very high strains without failing⁴⁶ – the Board found that “there is reasonable confidence that the MPC would not fail under the conditions predicted by [the parties’] analyses.” Id. at B-18 (emphasis in original). The State presented no evidence to the contrary.⁴⁷

Second, the State alleges that the material test data relied on by the majority came only from “static ‘coupon tests’” and thus is inapplicable for “instantaneous loading from aircraft

⁴⁵ The State also claims that the DOE Standard contains ductility ratios applicable to the rupture of structural steel members in tension. State Pet. at 19. However, it wholly ignores that the ratios it advances (10 and previously 20) are much lower and are not applicable to members in tension. See LBP-05-12, slip op. at 17-18 (ductility ratio for tensile failure much higher than ratio of 20 advocated by State below); see also Final PID at B-13 n.95 (citing Bjorkman testimony that ratio of 20 is applicable to buckling rather than tensile failure).

⁴⁶ See PFS F. at 168-179 which summarizes the extensive evidentiary record concerning the material properties and the testing of stainless steel.

⁴⁷ See, e.g., id. at B-13 n.96 (the State “neither presented nor pointed to a single piece of experimental evidence” to support its claim that the stainless steel MPC would fail “at any strain nearly as low as the State proposes as a standard for judgement here”) (emphasis added); id. at B-14 (the “State neither submitted nor pointed to a single piece of experimental evidence supporting” its claim that material “impurities and irregularities” and “weld[ments] of the stainless MPC “would weaken the material”) (emphasis added).

crashes.” See State Pet. at 20. The State’s characterization is patently wrong. The Board clearly noted that the data showed that the rapid application of loads would have “minimal effect on tensile rupture strain at the strain rates computed to occur in these crash events.” Final PID at B-15 & n.109;⁴⁸ see also Soler/McMahon Reb. at 8-9; PFS Exh. 290, 291, 292, 305; Tr. at 15,745-48, 17,54-57 (McMahon); PFS Reply F. at 87- 90. The State presented no contrary evidence.⁴⁹

Finally, the State claims that “the greatest factor relied on by the [majority] as a basis for its decision was . . . the admitted speculation of one witness [Mr. Gwinn] who suggested a reduction of [tensile failure strains] by 50% to 70% to account for welds and flaws.” State Pet. at 20. Again, the State is wrong. First, as noted above, the Board majority relied on the fact that the MPC will be fabricated and welded in accordance with ASME Code requirements specifically intended to prevent weaknesses caused by those processes or other material flaws. Final PID at B-14. Second, in addition to NRC Staff witness Mr. Gwinn’s testimony, the majority also relied on the testimony of Staff witnesses Dr. Bjorkman and Mr. Aramayo that a factor of safety of approximately two, based on the allowable strain limit in the ASME Code, would provide an adequate safety margin. Id. at B-18 n.120. Third, the tensile strains in the MPC projected by all parties were more than a factor of **** below the failure strains shown in the experimental data. Id. at B-18. Finally, the State presented no data even suggesting that the MPC’s stainless steel would fail at a tensile strain below 90 percent. Id. at B-14 to B-15.

In sum, the extensive record clearly establishes that the Board majority properly evaluated and concluded that the strains shown to occur in the MPC by all the parties’ analyses would not cause breach of the MPC confinement boundary.⁵⁰ The State has provided absolutely no evidentiary basis for reversible error, and its petition for review must be denied.

⁴⁸ In this respect, the specific test data for the 90% strain limit specified by the Board was done at strain rates in the range computed to occur in these crash events. Id. at B-13 & n. 97; Staff Exh. 92; Tr. at 16,004-06 (Bjorkman).

⁴⁹ Final PID at B-15 (“the State argued, without submittal of supporting experimental data, that” the failure strain “would be reduced when loads are applied rapidly”) (emphasis added).

⁵⁰ Indeed, ASME Code calculations performed by Dr. Soler – unrefuted by the State – demonstrate that, even assuming that an F-16 aircraft crash were a design basis event (which it is not), the MPC would conservatively withstand, without breach of its confinement boundary, the F-16 impact speeds analyzed by the parties. See Applicant’s Response to Board Order Directing Clarification of Record (Dec. 16, 2004) at 10-15; Final PID at B-16 & B-17. Be-

3. The Board's Determination of the Aircraft Crash Accident Probability Was Supported by the Record

The State alleges that the Board's determination that the UEP is less than 1 E-6 per year is clearly erroneous because it "relies on speculation and ignores credible evidence." State Pet. at 21. The State is wrong; the Board's determination was strongly supported by the record.

a. The Board's Determination of the Consequences of an Aircraft Impact into the Top of a Spent Fuel Cask Was Not Clearly Erroneous

The State claims that the Board majority erred when it adopted PFS's UEP assessment, see Final PID at B-40, because PFS's assessment of a potential F-16 crash impact into the top of a spent fuel cask was flawed. See State Pet. at 21. PFS determined that the potential for such an impact to cause damage should be assessed based on the component of the aircraft's impact velocity perpendicular to the cask top, i.e., the vertical component, which is calculated from the impact speed and the impact angle.⁵¹ The State claims, however, that an F-16 impacting a cask top at a shallow angle, without damaging that cask, could continue on to impact the side of a nearby second cask and thus its potential to cause damage should be assessed based on the horizontal component of the impact velocity and the capability of a (second) cask to withstand side impacts at that velocity. See State Pet. at 22-23.

The Board addressed this issue squarely in denying the State's request for reconsideration of its Final PID. See LBP-05-12, slip op. at 22-28. The Board did not find "any significant evidentiary support for the State's proposition." Id. at 24. The Board stated that

[f]or those crashes in which a major portion of the fuselage of the F-16 primarily impacts the top of a cask, then, one can reasonably expect the plane not only to

cause the ASME Code incorporates numerous conservatisms that provide substantial margins beyond the Code's design limits, this demonstration of confinement integrity even applying ASME Code requirements, conclusively (and conservatively) establishes the MPC's integrity under F-16 accident conditions.

⁵¹ Testimony of Alan I. Soler on the Structural Effects of a Potential F-16 Impact on a Spent Fuel Cask Contention Utah K/Confederated Tribes B (July 12, 2004) ("Soler F-16 Test.") at 22, 46-48 (physical analysis); id. App. A at 19-31 (same); PFS Exh. 265 ("Cornell Report") at 26-27, 48 & n.37 (probability calculations); Rebuttal Testimony of C. Allin Cornell—Contention Utah K/Confederated Tribes B (July 29, 2004) at 1-2 (same). Contrary to the State's claim, see State Pet. at 23, PFS did not disregard the potential effects of cask top impacts. PFS rigorously calculated their contribution to the UEP. See Cornell Report at 48 (Table V-3). PFS further evaluated the potential for an F-16 to impact the top of a first cask and go on and damage a second cask and determined that was not physically realistic. PFS Exh. 257 at 7-12; Cornell Report at 39.

suffer material deformation, but also to lose substantial momentum to that first cask, and thus, in such a case, the plane cannot reasonably be expected to have significant secondary impact.

Id. at 25-26. This finding was supported by the unrefuted testimony of PFS witness Dr. Soler, who pointed out that an F-16 impacting a cask top, even at a shallow angle, would not simply glance off and impact the side of a second cask at nearly the same speed. Rather, the structure of the underside of the F-16 would catch on the protrusions on the lid of the cask and the F-16 would decelerate and tumble, such that an impact with a second cask would not cause significant damage.⁵²

Regarding potential cases in which the F-16 strikes only a glancing blow to the top of a cask and goes on to hit the side of a second cask, the Board majority found that “the [NRC] Staff’s conservative computation of the [UEP] is a materially better estimate of the maximum effect one could reasonably expect from secondary crashes.” LBP-05-12, slip op. at 25 (citing NRC Staff Exh. 102). The Staff examined cases in which part of the F-16 fuselage would impact the top of a first cask and, at the point of impact, the centerline of the fuselage would not impact the first cask but, if extended, would intersect the side of a second cask. The Staff conservatively treated such impacts as unabated impacts into the side of the second cask, i.e., it assumed that the impact of the F-16 fuselage on the top of the first cask would not slow or deflect the aircraft in any way. See Staff Exh. 102 at 20. The Staff’s approach would increase the UEP by approximately 0.4 E-7 per year, which the Board majority adopted. *Id.*; LBP-05-12, slip op. at 28.

PFS’s expert, Dr. Soler, also addressed a hypothetical case that disregarded the protrusions on top of the cask and the underside of the F-16 and assumed, as theorized by the State, that the F-16 would impact and skip across the lid of one cask at a shallow angle and high speed and hit the side of a second cask. Tr. at 19,566-67 (Soler); see id. at 19,569. He showed that because of the geometry of the casks at the PFSF, the aircraft could not impact the second cask squarely and thus could not cause significant damage. Tr. at 19,562-65 (Soler); PFS Exh. 326.

⁵² Tr. at 19,555-62 (Soler); PFS Exh. 257, Fig. 101 (depicting underside of F-16); State Exh. 231, Fig. 1.2.1 (depicting top of cask); see LBP-05-12, slip op. at 23; see also PFS Exh. 257 at 7-12; Soler F-16 Test. at 46-47; Cornell Report at 39.

Because the Board majority rejected – based on its findings as to what would happen physically – the State’s claim that an F-16 impacting the top of a first cask should be treated as an impact on the side of a second cask, it also rejected the UEP calculation advanced by the State based on the same premise. See LBP-05-12, slip op. at 28; compare State Pet. at 24.⁵³

Thus, contrary to the State’s claim regarding the effects of cask top impacts, see State Pet. at 22, the Board majority did not engage in “subjective reasoning” (whatever that might mean) or speculation. Rather, it based its findings on PFS’s testimony and the Staff’s calculation. The majority also made its own estimate of the effect of potential glancing top impacts on the UEP, see LBP-05-12, slip op. at 26-28, but it relied on information in the record and confirmed the Staff’s calculation.⁵⁴ Therefore, the majority’s findings with respect to the effects of cask top impacts were not clearly erroneous and hence do not warrant Commission review.

b. The Board’s Inclusion of Seven F-16 Accidents in the Aircraft Accident Data Set Was Not Clearly Erroneous

The State asserts that the Board erred when it declined to exclude seven of the 57 F-16 accidents from the accident data set used to calculate the probability of a cask breach. See State Pet. at 24-25.⁵⁵ The State claims that the Board should have excluded these seven accidents because they resulted in low-speed impacts (and thus represented a reduced hazard to a cask) and because both the State’s and PFS’s experts allegedly agreed that the accidents could not occur in Skull Valley. Id. The State asserts that excluding the accidents would increase the UEP for the PFSF by 1.03 E-7. Id. at 26. The State’s arguments seriously mischaracterize the record.

⁵³ That calculation had been performed by PFS, but it was only a hypothetical calculation intended to determine the effect on the UEP of the State’s unrealistic impact scenario. See LBP-05-12, slip op. at 24 & n.51; PFS Exh. 324.

⁵⁴ Boards may make their own calculations based on evidence, physical principles, and known facts. See Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-229, 8 AEC 425, 437 (1974).

⁵⁵ The 57 accidents occurred over a 10-year period and were used to determine probability distributions for impact speeds and angles for potential F-16 crashes in Skull Valley. The accidents’ initiating events could occur in Skull Valley and thus they have been called “Skull Valley Type Events.” Impact speed probabilities were generally expressed in terms of the probability of a speed exceeding some value of interest, usually a speed at which engineering analyses had shown that a cask would not be breached.

The Board majority correctly addressed the State's claim in denying the State's request for reconsideration. See LBP-05-12, slip op. at 19-22. The majority found that the State's and PFS's experts did not agree that the seven accidents should simply be excluded. Id. at 20⁵⁶. Rather, responding to a Board request for alternative F-16 accident data sets – derived from different accident exclusion criteria – PFS had suggested that an alternative analysis might simultaneously do two things: (1) eliminate the seven low-speed crashes cited by the State and (2) weight the crashes in the data set to reflect the altitudes at which F-16s transit Skull Valley, i.e., only 4 percent of the flights take place between 5,000 ft. above ground level (AGL) and 14,000 feet AGL, while 96 percent take place below 5,000 feet AGL (generally between 3,000 ft. and 4,000 ft. AGL). Id. at 21 (citing PFS Exh. 319 at 1-2). PFS found that this alternative approach did not materially affect the UEP. Id.⁵⁷ The State flagrantly ignores the second part of PFS's alternative analysis, which, taken as a whole, was the basis for the Board's finding.⁵⁸

Nor is that finding clearly in error. The State quotes PFS as stating that: "The idea is to model as closely as possible the flight that occurs in Skull Valley." State Pet. at 26 n.51. PFS did that by excluding the seven low-speed impacts unlikely in Skull Valley and reducing the weight of the higher-altitude accidents (with their higher-speed impacts), which are also unlikely

⁵⁶ Contrary to the State's assertion (State Pet. at 25), PFS's expert did not state that the seven accidents "could not occur" in Skull Valley; rather, he stated that they were unlikely to occur. See Tr. at 17,767 (Fly) (accidents could result in low speed, low altitude ejections); id. at 17,777-78 (possibility that some ejection altitudes would be consistent with those of takeoff and landing accidents); id. at 17,883-84 (Fly) (ejection at 50 ft. altitude unlikely but not necessarily impossible). See also Tr. at 18,436 (Horsman) (State witness agreeing that ejection 50 ft. possible in Skull Valley after aircraft engine failure).

⁵⁷ The effect on the UEP of excluding the seven low-speed impacts was offset by the reduced weighting of the accidents that were initiated at higher altitudes because the higher altitude accidents tended to have somewhat higher than average impact speeds. See PFS Exh. 319 at 8 (UEP); PFS Exh. 321 at 1 (impact speeds).

⁵⁸ In a later section of its petition, the State asserts that PFS's alternative analysis considered "only 29 crash events," which purportedly consisted of "7 takeoffs and landings and 22 other events." State Pet. at 29 & n.56. That is a gross mischaracterization. PFS's alternative analysis considered 39 accidents (29 initiated below 5,000 ft. AGL and 10 initiated between 5,000 and 14,000 ft. AGL). Only two of those accidents occurred in the broadly defined takeoff or landing phase of flight. See PFS Exh. 319 at 1, 8 (analysis excluded seven out of nine total takeoff and landing accidents). Further, PFS performed a second sensitivity analysis taking a similar approach but considering 11 additional accidents initiated above 14,000 ft. AGL. See Testimony of C. Allin Cornell, Wayne O. Jefferson, Jr., and Ronald E. Fly on the Appropriateness of Using Skull Valley-Type Events for Evaluating the Speed and Angles of Potential F-16 Crashes in Skull Valley, Utah – Contention Utah K/Confederated Tribes B (July 12, 2004) ("Cornell/Jefferson/Fly Test.") at 29. This alternative also did not significantly change the UEP. See id. at 30.

because so few F-16s transit Skull Valley at higher altitudes. PFS's initial approach utilized all of the accidents in the data set without exclusion or weighting in order to make maximum use of the available information; it yielded nearly the same UEP value as the alternative analysis.⁵⁹

Further, crashes with low speed impacts similar to the seven accidents cited by the State are possible in Skull Valley. LBP-05-12, slip op. at 21-22. The impacts that occurred in the seven accidents were deemed unlikely in Skull Valley because of certain pilot actions, that would be unlikely in Skull Valley, which resulted in the pilot ejecting at low speed or low altitude. *Id.*; see PFS Exh. 319 at 3-7. However, all of the seven accidents resulted from engine failures, which are the most likely accident-initiating events for F-16s transiting Skull Valley,⁶⁰ and which, even with typical pilot actions, often result in low speed impacts. LBP-05-12, slip op. at 21. Simply removing such accidents from the data set, as advocated by the State, "would distort the historical results which provide the foundation for predicting the future" and "inaccurately shift the predicted probability distribution toward higher speeds." *Id.* at 21-22. Hence, the Board's finding was not clearly erroneous and does not warrant Commission review.

D. The Record Demonstrates that the Board's Aircraft Crash Consequences Decision Was Conservative

The State alleges that the Board majority's decision on aircraft crash consequences was "based on limited data with material uncertainties" and the State attacks the four significant conservatisms that the majority found would reduce the actual risk to the PFSF from aircraft crashes far below PFS's calculated UEP of 7.37 E-7 (the value the majority ultimately adopted). See State Pet. at 26-30. The State misconstrues the evidence and thus its attacks are meritless.

⁵⁹ *E.g.*, Cornell/Jefferson/Fly Test. at 12-13; PFS Exh. 319 at 8. The initial analysis made use of as much relevant data as possible without fine parsing on the basis of pilot actions or the altitudes at which accidents were initiated. While PFS recognized that its approach might give too much weight both to accidents in which the pilot ejected at low altitude and to accidents that were initiated at higher altitudes, it also recognized that those effects were small and offsetting and thus its initial approach produced a reasonable estimate of crash impact speed distributions. Cornell/Jefferson/Fly Test. at 13; PFS Exh. 319 at 8; Tr. at 17,737-40 (Cornell). Therefore, in presenting the alternative analysis cited by the Board, PFS's witness, Dr. Cornell, stated that "we maintain that our original approach, which included all Skull Valley Type Event accidents without need for selecting or weighting accidents by altitude, is appropriate." PFS Exh. 319 at 8, quoted in LBP-05-12, slip op. at 20.

⁶⁰ Fifty-two out of the 57 F-16 accidents in the data set were caused by engine failure. Cornell Report, App. A at 5.

First, the State challenges the Board's finding that PFS's UEP calculation is highly conservative because it assumed that all aircraft impacts into the side of a spent fuel cask would be radial to the cask, i.e., normal to the cask's cylindrical outer surface. State Pet. at 27 (citing Final PID at B-38). The State claims that an eccentric (i.e., non-radial) impact that transmitted less energy to the cask could cause more damage because of the "complex dynamic interaction of the fuel basket and MPC," id. (citing Tr. at 19,525-26 (Sozen)), and also asserts that even if the first impacted cask was not damaged by a non-radial impact, a second impacted cask might be, id.

The Board's finding is supported by the record. First, it is undisputed that off-center or off-normal impacts would impart less force to a cask. PFS Exh. 257 at 7-11; Soler F-16 Test. at 10-11; Tr. at 19,526 (Sozen). Dr. Soler stated that such impacts would also cause the aircraft to glance off the cask or undergo large orientation changes, further reducing the force imparted to the cask. PFS Exh. 257 at 7-11. As discussed above, he also explained that an aircraft impacting a first cask would not continue on to impact and cause significant damage to a second. Even Dr. Sozen agreed that an aircraft would lose energy in impacting the first cask before it hit a second. Tr. at 19,534-35 (Sozen). Second, the State's claim of canister damage resulting from interactions with the fuel basket is based only on vague, offhand remarks. See Tr. at 19,526 (Sozen). Moreover, such claims were discredited when similar State claims were shown late in the hearing to be based only on numerical artifacts in the State's computer modeling results.⁶¹ Third, the Board correctly relied on testimony from both PFS's and the State's probability experts that a non-radial impact is much more probable than a radial impact. Final PID at B-38 (citing Tr. at 19,049-50 (Cornell); Tr. at 18,967-69 (Thorne)). Therefore, the hazard presented by potential impacts into the side of a cask is much less than PFS's conservatively calculated UEP. Indeed, Dr. Cornell testified that accounting for non-radial impacts could reduce the UEP contribution

⁶¹ The fuel basket is the stainless steel grid that supports the fuel assemblies within the canister. For most of the hearing the State had alleged that fuel basket-canister interactions would cause high strains in the canister in the event of an aircraft impact into a cask. However, the State withdrew its claims late in the hearing when it became apparent that they were based on non-physical numerical artifacts occurring in its finite element computer model runs. See Tr. at 19,481-82 (Bjorkman). Even the State's final results tended to exaggerate the strains in the MPC that would result from interactions with the fuel basket. Id. at 19,478 (Bjorkman).

from potential side impacts by roughly a factor of five. Id. (citing Tr. at 19,950-51 (Cornell)). Therefore, the State's claim does not warrant Commission review.

Second, the State challenges the Board's finding that PFS's UEP is conservative because PFS treated potential F-16 impacts into a "skid area"⁶² as impacts directly into the side of a cask. See State Pet. at 27-28 (citing Final PID at B-38 to 39). Contrary to the State's assertion, id. at 28, the finding is not based on subjective reasoning but rather is fully supported by the record.

The Board majority cited uncontroverted testimony that the F-16 is fragile enough that it would break up if it crashed onto the desert floor. Final PID at B-38 (citing Tr. at 17,787 (Fly); Tr. at 18,550-52 (Horstman)). Therefore, it concluded that an F-16 impacting the skid area would likely: (a) be damaged such that it would not be intact when it hit the cask, (b) lose momentum and energy to the ground before hitting a cask, and (c) would not impact a cask *****.⁶³ Thus, it would cause significantly less damage than a direct impact. That is entirely consistent with Dr. Soler's testimony that an F-16 impacting the side of a second cask after impacting the top of a first cask would not significantly damage the second cask. See Section III.C.3.a., supra. The Board noted further that the skid area represents about 15 percent of the effective area of the PFS cask storage area and hence about 15 percent of the potential impacts would be impacts into the skid area. Final PID at B-38 (citing Tr. at 19,019-21 (Thorne)). Thus, it reasonably concluded that PFS overestimated the UEP from potential cask side impacts by roughly 15 percent. Id. at B-39. That follows logically from the evidentiary record; it is neither based on "subjective reasoning" nor clearly erroneous, and hence does not warrant review.

Third, the State challenges the Board's finding that PFS's UEP is conservative because it took no credit for the ability of a pilot of a crashing F-16 to point the aircraft away from the PFSF prior to ejecting. State Pet. at 28. The State asserts that "pilots cannot be counted on, in a

⁶² The skid area is used in calculating the effective area of a cask by representing the potential for the aircraft to impact the ground and then skid into the cask. E.g., Cornell Report at 43. In performing its UEP calculations, PFS conservatively assumed that an impact onto the skid area would have the same effect as an impact directly into the side of a cask at the worst possible location. Id. at 52; Tr. at 18,778-79 (Cornell).

⁶³ PFS assumed that all crash impacts occurred radially onto the cask ***** because that was the impact location that would cause greatest damage to the cask. See PFS Exh. 257 at 7-10 and 11, 8-30 and 31.

nuclear regulatory safety context, to take the proper action under emergency conditions” and that “[n]o nuclear license has ever been based on taking credit for avoiding human error.” Id.

The State’s argument simply ignores a wealth of evidence in the probability hearing that the Board relied on to conclude that pilots would attempt to avoid the PFSF. Final PID at B-39. The Board noted its previous finding that pilots would make a good faith effort to avoid the PFSF and that in the past pilots had indeed sacrificed their own lives to save the lives of people on the ground. While the Board concluded that PFS had not presented sufficient evidence to show that 95 percent of the time an F-16 pilot would be able to avoid the PFSF before ejecting, id. & n. 197; see LPB-03-04, 57 NRC at 100, avoidance less than 95 percent of the time is not equivalent to no avoidance whatsoever. Indeed, the State’s witness agreed that for “a large body” of accidents a pilot would be able to avoid the PFSF. Tr. at 8503 (Horstman); see also id. at 8432. Thus, the Board was correct in concluding that pilot avoidance would provide “some material reduction” to the UEP calculated by PFS for the consequences hearing (which assumed no avoidance). Hence, the State’s claim warrants no Commission review.

Fourth, the State challenges the Board’s finding that PFS’s UEP is conservative because it is based on the assumption that only impacts at less than *** mph would not cause a canister breach when PFS’s engineering analyses showed that, in fact, a *** mph impact also would not cause a breach. State Pet. at 28. The State claims that PFS’s analyses cannot support this conservatism because the strains caused by the *** mph impact are lower than the strains caused by a *** mph impact. Id. (citing State Findings ¶¶ 67-70, 77).

The State simply mischaracterizes the evidence. Dr. Soler testified that the maximum plastic strain in the canister inside the cask impacted by the aircraft (which was higher than the maximum strain in the canister inside a second cask assumed to be impacted by the first cask), which occurred in the *****, was *** percent in the *** mph impact and *** percent

in the *** mph impact. Tr. at 15,773-75, 15,801-02 (Soler).⁶⁴ Thus, the Board's finding of conservatism in the UEP was not clearly erroneous and does not warrant Commission review.

Finally, the State claims the Board's finding regarding the hazard to the PFSF is non-conservative because it (1) improperly includes data from the seven F-16 accidents the State asserts should have been excluded from the accident data set and (2) it did not apply the strain limits the State advocated from the DOE Standard and from NRC Reg. Guide 7.6.⁶⁵ Those State claims are meritless as discussed above. See Section III.C.3.b, *supra* (F-16 accidents); Section III.C.2., *supra* (DOE Std. & Reg. Guide 7.6).⁶⁶ Thus, the Board's finding that PFS's calculated UEP was significantly conservative is not clearly erroneous and does not warrant Commission review. In the end, as the Board stated, the conservatism of the calculated UEP "is likely to materially overestimate the probability [of a radiological release] (by perhaps an order of magnitude)." Final PID at B-40. That should make the Commission confident that the probability of such a release resulting from an aircraft crash is well below the applicable 1 E-6 safety standard (which as discussed in Section III.A.2, *supra*, is itself conservative by two orders of magnitude).

⁶⁴ State Exh. 255, which was the ultimate source of the strain data relied on by the State, contained an error, in that it compared the strains in the canisters' ***** for the *** mph impact to the strains in the canisters' ***** for the *** mph impact. Tr. at 15,773-75, 15,918-22 (Soler). Strains in the **** were higher for both cases than strains in the ****. It should be noted that the strains cited here were compressive and thus would not pose a threat to rupture a pressure vessel like the canister. Soler/McMahon Surrebuttal at 6-7; Tr. at 17,125-29 (Bjorkman) (effect of compressive strains).

⁶⁵ The State also alleges in a footnote that the Board's decision was "non-conservative" because (1) only 15 of the 57 F-16 accident reports contained an impact speed, (2) different choices in curve fitting could cause the UEP to exceed 1 E-6, and (3) Air Force training operations could change in the future and increase the risk to the PFSF. State Pet. at 29 n.57. The State's claims are meritless. All of the parties' witnesses agreed that impact speeds could be accurately estimated for reports without documented speeds via linear regression analysis. *E.g.*, Tr. at 18,889-90, 18,895 (Thorne). Curve fitting can increase the calculated UEP only if a step function is used – inappropriately – to characterize the crash impact speed distribution. See Tr. at 19,040-44 (Cornell); *see also* Tr. at 18878-79 (Thorne) (acknowledging step function as choice of curve). State claims about future training activities are pure speculation as the State introduced no evidence and made no arguments in that regard in the aircraft crash consequences hearing. Moreover, it is too late for the State to inject such arguments into the proceeding now.

⁶⁶ The State's assertion that Reg. Guide 7.6 requires the use of only elastic analysis in assessing potential damage to a spent fuel cask or canister, State Pet. at 30, is misplaced. Staff witness Dr. Bjorkman explained that the elastic limit applied only to drop tests performed on spent fuel transportation casks to ensure that the casks have extra robustness to withstand accidents more severe than the drop test. Tr. at 17,159, 17,204 (Bjorkman). This enables the use of the standard drop test to ensure safety in more severe transportation accidents without having to conduct more demanding and impractical tests. Tr. at 17,204 (Bjorkman).

IV. CONCLUSION

The PFS case has represented an eight-year effort to license an ISFSI, a simple and safe facility relative to others licensed by the NRC. The Commission and the Licensing Boards have maximized the ability of the public, and in particular the State, to participate in the process at every turn. There have been two lengthy evidentiary proceedings on aircraft crash hazards alone, as well as proceedings on other admitted contentions. Nonetheless, at this late stage, the State has filed a petition requesting even further review based largely on mischaracterization of the evidentiary record and a misplaced attempt to reargue issues resolved long ago.

The PFS facility is the product of an industry effort to solve a problem created by the DOE's failure to take spent nuclear fuel from American utilities seven years ago as required by the Nuclear Waste Policy Act. It would allow the storage of spent fuel in a centralized, remote, and safe location, so that the nation's nuclear power plants can continue to operate and new power plants can be built without being enshrouded in uncertainty regarding the management of spent fuel. This worthy effort should not be further hindered by yet another round of pleadings based on State arguments that patently lack merit.

Therefore, the Commission should decline review.⁶⁷

Respectfully submitted,



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July 7, 2005

⁶⁷ While the record overwhelmingly demonstrates no basis for the State's petition, which should therefore be rejected, should that not be the case, the Commission should also grant the PFS and the Staff petitions for review of the Board's probability ruling, which the Commission held in abeyance pending availability of a complete record. CLI-03-05, 57 NRC at 285.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Commission

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

CERTIFICATE OF SERVICE

I hereby certify that copies of the Redacted Non-Safeguards Version of Applicant's Response to State of Utah's Petition for Review of Contention Utah K were served on the persons listed below (unless otherwise noted), by e-mail with conforming copies by U.S. Mail, first class, postage prepaid, this 7th day of July, 2005.

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DOCKETED
USNRC

July 8, 2005 (2:58pm)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Re: Private Fuel Storage - Docket No. 72-22-ASLBP No. 97-732-02

Dear Mr. Julian:

Today, Private Fuel Storage, L.L.C. ("PFS") is filing Applicant's Response to State of Utah's Petition for Review of Contention Utah K. Because PFS's pleading contains safeguards information, it is being filed under the safeguards procedures established by the Atomic Safety and Licensing Board. Accordingly, only the original of the pleading is being filed with your office.

PFS is also filing a redacted, non-safeguards version of its pleading, with the original and two copies being filed with your office. Copies of the redacted, non-safeguards version of the pleading are also being filed with all other persons on the service list.

If you have any questions, please contact me at (202) 663-8429.

Sincerely,

D. Sean Barnett

Enclosure

Emile L. Julian
July 7, 2005
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