

June 28, 1999

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Atomic Safety and Licensing Board

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

**APPLICANT'S MOTION FOR SUMMARY DISPOSITION
OF UTAH CONTENTION M – PROBABLE MAXIMUM FLOOD**

Applicant Private Fuel Storage L.L.C. (“Applicant” or “PFS”) files this motion for summary disposition of “Utah Contention M – Probable Maximum Flood,” (“Utah M”) pursuant to 10 C.F.R. § 2.749. Summary disposition is warranted on the grounds that there exists no genuine issue as to any material fact relevant to the contention and, under applicable Commission regulations, PFS is entitled to a decision as a matter of law. This motion is supported by a Statement of Material Facts, to which the Applicant asserts no genuine dispute exists, and the declarations of Dr. George Liang and Jerry Cooper and related exhibits, the deposition of David B. Cole, the State’s flooding expert, and discovery responses by the State of Utah.

I. STATEMENT OF THE ISSUES

On April 22, 1998, the Atomic Safety and Licensing Board (“Licensing Board” or “Board”) admitted Contention Utah M. Private Fuel Storage, L.L.C. (Independent Spent

Fuel Storage Installation), LBP-98-7, 47 NRC 142, 192 (1998). The contention, as admitted, asserts that:

The application fails to accurately estimate the Probable Maximum Flood (PMF) as required by 10 C.F.R. § 72.98, and subsequently, design structures important to safety are inadequate to address the PMF; thus, the application fails to satisfy 10 C.F.R. § 72.24(d)(2).

1. The Applicant's determination of the PMF drainage area to be 26 sq. miles is inaccurate because the Applicant has failed to account for all drainage sources that may impact the ISFSI site during extraordinary storm events.
2. In addition to design structures important to safety being inadequate to address the PMF, the consequence of an inadequate PMF drainage area may negate the Applicant's assertion that the facility is "flood dry".

Id. at 253-54.

As part of the assessment of site conditions required for an ISFSI license,¹ as outlined in NUREG-1567, an applicant must evaluate the site's potential to flood from a Probable Maximum Flood ("PMF"). The PMF is the most severe flood possible at a site based on hydrologic and meteorological conditions. See Liang Dec. at ¶ 3.

Utah M concerns PFS's calculation of the PMF and alleged consequences of underestimating the flood volume.² In the State's bases for Utah M, subpart 1 was supported by the State's claim that the drainage area for a regional storm covers over 240 square miles. Utah Contentions at 96. Subpart 2 was supported by the assertions that the underestimation of the flood results in the inadequate design of the facility's diversion

¹ See 10 C.F.R. § 72.24(d)(2) and § 72.98.

² "State of Utah's Contentions on the Construction and Operating License Application by Private Fuel Storage, L.L.C. for an Independent Spent Fuel Storage Facility," dated November 23, 1997 [hereinafter "Utah Contentions"] at 96-97.

berm and subsequently, the facility and the access road may be damaged by the flooding. Id at 96-97.

The Applicant moves for summary disposition of Utah M on the grounds that Utah M is now moot. First, PFS has increased the drainage area for calculating the PMF from the 26 square miles used in the License Application to 270 square miles,³ which the State has acknowledged is an appropriate drainage area for calculating the PMF.⁴ Second, the revised design basis PMF incorporates ultraconservative assumptions suggested by NRC Staff and, as a result, significantly exceeds the State's estimate of the PMF. The site will remain flood-dry, as flood protection structures will be designed to address this conservatively estimated PMF, and therefore the PMF will not impinge or threaten "design structures important to safety."⁵ Thus, no genuine issue of material fact remains under Utah M, and PFS is entitled to a decision as a matter of law.

II. LEGAL BASIS FOR SUMMARY DISPOSITION

Pursuant to Commission regulations, a party is entitled to summary disposition "as to all or any part of the matters involved in [a] proceeding," "if the filings in the proceeding, depositions, answers to interrogatories, and admissions on file, together with the statements of the parties and the affidavits [provided], if any, show that there is no genu-

³Liang Dec. at ¶¶ 3-4; see also PFS Safety Analysis Report, rev.3 ("SAR"), at 2.4-4

⁴ See State of Utah's Second Amended Responses and Supplemental Responses to Applicant's First Set of Formal Discovery Requests. ("Utah Sec. Amd. Resp. to PFS First Disc. Req."), Cont. M, Req. for Admn. No. 1 (May 12, 1999).

⁵ The State still maintains that the PMF will adversely impact the access road to the PFSF site, but the access road is not a structure, system or component important to safety, and its flooding or washing out will have no adverse health or safety impacts with respect to the PFSF. Cooper Dec. at ¶ 3.

ine issue as to any material fact and that the . . . party is entitled to a decision as a matter of law.” 10 C.F.R. § 2.749. PFS set forth the relevant law at some length in its first motion for summary disposition, and the legal basis for summary disposition provided in that motion is incorporated by reference herein. See App.’s Mot. Sum. Disp. Utah C at 3-15 (April 21, 1999).

III. PFS IS ENTITLED TO SUMMARY DISPOSITION OF UTAH M

PFS is entitled to summary disposition because it has exceeded all NRC regulatory requirements and has designed the facility to remain flood-dry during a PMF larger than that calculated by the State.

A. The Design PMF For The PFSF Is More Conservative Than The State’s Estimate And The PFSF Will Remain Flood-Dry During the PMF.

Under 10 C.F.R. 72.24(d)(2) – which is the regulatory underpinning for Utah M – an applicant for an ISFSI license must, *inter alia*, ensure that structures, systems and components (“SSCs”) important to safety are adequate to protect public health and safety from natural phenomena, including flood events. The potential for flooding at a nuclear facility is based on the worst-case flood considered possible at that location, termed the Probable Maximum Flood. See Liang Dec. at ¶ 3.

Based on PFS’s initial estimation of the PMF, as described in the June 1997 License Application, the State alleged in Utah M that PFS had inadequately estimated the PMF and thus, SSCs important to safety may be threatened. The State’s concerns are no longer valid in that PFS has revised its calculations to incorporate the concerns of both

the State and the NRC Staff. First, PFS has increased the basin drainage area for calculating the PMF from 26 square miles to 270 square miles (which is larger than the 240 square mile area suggested by the State in Utah M). Liang Dec. at ¶¶ 5-7. The State has expressly admitted that the 270 square mile drainage area used by PFS “is an appropriate drainage area for calculating the potential for flooding at the PFS ISFSI” and has used this same area in its own PMF flood calculations.⁶ Thus, subpart 1 of Utah M is now moot.

Further, PFS has adopted ultra conservative assumptions for calculating the PMF suggested by the NRC, which are collectively more conservative than the assumptions used by the State in its PMF calculation. Employing these very conservative assumptions, PFS estimated the PMF to be 85,000 cfs, and designed the flood protection structures accordingly. Liang Dec. at ¶¶ 8, 13. By comparison, the State estimates the PMF to be only 64,500 cfs. See Utah Sec. Amd. Resp. to PFS First Disc. Req. at Cont. M, Int. No. 1. Thus, the design PMF for the PFSF is now 31% larger than the State’s own estimate. Liang Dec. at ¶ 8. Therefore, the State’s contention in Utah M that PFS has underestimated the PMF is obviously moot and without merit.⁷

⁶ Utah Sec. Amd. Resp. to PFS First Disc. Req. at Cont. M, Req. for Admn. No. 1, at 5, and Int. No. 1 at 6; see also Cole Dep. at 16. As set forth in Dr. Liang’s Declaration, PFS evaluates the potential for flooding for two different basins. Liang Dec. at ¶ 5. The State in Utah Contention M, however, only raised issues with respect to Basin A described and discussed in the text of this motion. Id.; see also Cole Dep. at 20.

⁷ The State in its discovery responses has indicated that it takes issue with one of the assumptions used in PFS’s PMF calculation – i.e., the time of concentration, which it believes increases the size of the PMF event. Utah Sec. Amd. Resp. to PFS First Disc. Req. at Cont. M, Int. No. 1 at 6. However, as acknowledged by the State’s expert, PFS made assumptions concerning infiltration rate, which increases the size of the PMF event calculated by PFS. Cole Dep. at 53-54. As explained by Dr. Liang, the CN of 96 used by PFS in calculating its design PMF of 85,000 cfs is much more conservative than the infiltration rate used by the State and greatly increases PFS’s PMF calculation so that it is 31% larger than the PMF calculated by the State. Liang Dec. at ¶ 10. Mr. Cole acknowledged that the CN of 96 used by PFS for infiltration

Further, at a design PMF of 85,000 cfs, the PFSF will still remain flood-dry throughout the PMF event. No floodwaters will reach the site. Based on natural topography of the site, the level of the peak flood waters on the east side, where the flood will pass, will range from 4,468.8 feet – 6.2 feet below the site's elevation at the facility's southeastern corner – to 4,456.7 feet – 5.3 feet below the site's elevation at the facility's northeastern corner. Liang Dec. at ¶11. By the State's estimate, the flood water would be even further distant from the facility.

The PFS access road will be up-gradient of the site and is only designed to accommodate the 100 year flood event.⁸ Therefore, floodwaters will accumulate upstream of the site behind the access road, and eventually overtop the road. To protect the site from this accumulated water, a flood diversion berm will be constructed to the east of the PFSF. Liang Dec. at ¶ 13. The elevation of this berm will be at least one foot above the peak elevation of the accumulated waters, based on the PMF of 85,000 cfs. Liang Dec. at ¶ 13; SAR Figure 2.4-4, attached as Exh. 4 to Liang Declaration. As the State's expert concedes, a diversion berm that is adequate for a PMF of 85,000 cfs would also be adequate for the PMF of 64,500 cfs calculated by the State. See Cole Dep. at 57. The State's expert has also stated that he would not have an issue with a correctly constructed

for calculating the design PMF of 85,000 cfs was "much more conservative" than the State's infiltration rate used for calculating its PMF of 64,500 cfs. Cole Dep. at 55-56. Because the more conservative assumption by PFS concerning infiltration more than offsets the State's more conservative assumption concerning the time of concentration, the factual dispute between the State and PFS concerning the time of concentration is immaterial. Liang Dec. at ¶ 10.

⁸ The access road at the PFSF is designed to withstand the 100-year flood, which meets or exceeds standard engineering practice for roads, including interstate highways. Cooper Dec. at ¶ 5. PFS has calculated the 100-year flood as 2,430 cfs. Liang Dec. at ¶ 7; see SAR at 2.4-11. The State does not take issue with this value. See Cole Dep. at 27.

berm whose ability to retain floodwaters would not be breached by the access road crossing it.⁹ See Cole Dep. at 51.

The design of the access road crossing the berm is such, however, that it will not cause the berm to be breached at the point at which it traverses the berm. Liang Dec. at ¶ 14. As explained there, and as shown on Figure 2.4-4 of the SAR (added by PFS's May 19, 1999 License Amendment), the access road will pass up and over the berm. Id.; SAR Figure 2.4-4. It will slope upwards to an elevation of 4,507.5 – the height of the berm – as it approaches the berm and it will slope downward after it passes over the berm. Liang Dec. at ¶ 14. Thus, the elevation at the berm where the access road traverses the berm will remain at its design height of 4,507.5 feet – more than one foot higher than the peak elevation of 4,506.4 feet of the water accumulated behind the access road. Id. Thus, this additional information shows the berm will not be breached by the access road and its ability to retain flood waters will remain intact at the point at which the road traverses the berm.

Downstream of the access road, the flood's elevation will be determined by the natural topography, as described above. See Liang Dec. at ¶¶ 11-12. As stated, at the flood's peak, the waters will be at least 5 ft. below the site's elevation. Id. at ¶ 11. Thus, neither the accumulated floodwaters behind the access road nor the floodwaters downstream of the access road will reach the PFSF.

⁹ The State had expressed a concern in its discovery responses about the lack of information on "how the access road gets past the berm." Utah Sec. Amd. Resp. to PFS First Disc. Req. at Cont. M, Int. No. 2 at 7. As discussed in the text above, subsequent information filed by PFS in amending the License Application to incorporate the design PMF of 85,000 cfs shows that the road will not cause a breach in the berm.

B. The PMF Will Have No Adverse Impact On Public Health And Safety.

Because the floodwaters will not reach the restricted area of the PFSF, the PMF poses no threat to public health and safety. No SSC important to safety will be reached by the floodwaters and the lowest SSCs important to safety, the northernmost cask storage pads, will be at least 6 ft. above the floodwaters. Liang Dec. at 5. In its response to PFS discovery requesting the State to specify the potential adverse impacts of potential flooding at the PFSF, the State did not identify a single SSC important to safety that would adversely impacted.¹⁰ Nor did the State identify how the PMF could result in a release of radiation or cause any harmful effect to the general public. Id. Rather, the State referred to (1) a lack of sufficient information to show “how the access road gets past the berm” and (2) alleged adverse impacts from flooding or washing out of the access road as the only potential adverse impacts at the PFSF resulting from the PMF event. Utah Sec. Amd. Resp. to PFS First Disc. Req. at Cont. M, Int. No. 2, at 7.

As described above, PFS has provided information on how the access road passes over the berm without breaching the berm. In regard to the flooding or washing out of the access road, the road is not an SSC important to safety to which Utah M is explicitly limited, see Utah Contentions at 96, and the loss of the access road will not pose any threat to public health or safety. The NRC defines SSCs important to safety to be SSCs that 1) maintain the conditions required to store spent fuel safely, 2) prevent damage to the spent fuel container during handling and storage, and 3) provide reasonable assurance

¹⁰ State of Utah’s Responses and Objections to Applicant’s First Set of Formal Discovery Requests, at Cont. M, Int. Nos. 2-3, at 48-49; Utah Sec. Amd. Resp. to PFS First Disc. Req. (April 14, 1999) at Cont. M, Int. Nos. 2-3, at 7-8.

that the spent fuel can be handled and stored without undue risk to the public. 10 C.F.R. § 72.3. The access road meets none of these criteria and thus, is not a structure, system or component important to safety. Rather, PFS has determined that the fuel casks, the fuel canisters, the storage pads, and the canister building (including components inside the building) are the only SSCs at the PFS important to safety, and none of these structures are impinged or threatened by the PMF. Cooper Dec. at ¶ 3.

Nor does the flooding or washing out of the access road present any public health or safety threat. Loss of the access road would pose no threat to the integrity of the storage casks, and could not result in the release of radioactive material, in that the flood waters from the design PMF would not impinge the site itself. Therefore, although the State argues that PFS would not be able to cope with emergencies as required by 10 C.F.R. § 72.24(k), it identifies no potential release of radioactivity that would require emergency response.¹¹ Further, appropriate security and operations staff would be maintained at the site throughout the PMF event to ensure the safe operation of the facility at all times. After the PMF event, the facility would be accessible to four wheel drive vehicles and foot traffic, and, until the access road were repaired, facility operations would be minimized. See Cooper Dec. at ¶ 4.

¹¹ As discussed in PFS's Motion for Summary Disposition for Utah R, emergency response under 10 C.F.R. § 72.32 is required only with respect to potential radioactive releases. Applicant's Motion for Partial Summary Disposition for Utah R – Emergency Plan at 4-5. Moreover, emergency response capability at the PFSF is only required for on-site response since NRC's regulations do not require off-site emergency response capability for ISFSIs, such as the PFSF, that do not package or repackage spent fuel but merely handle and store previously packaged spent fuel. 60 Fed. Reg. 32,430, 32,442 (1995) (10 C.F.R. § 72.32 – Statement of Considerations).

Thus, the access road is not a SSC important to safety and its loss would have no adverse impact on public health and safety. Therefore, it need not be designed to withstand a PMF.

IV. CONCLUSION

For the forgoing reasons, the Board should grant the Applicant summary disposition with respect to Contention Utah M.

Respectfully submitted,



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Dated: June 28, 1999

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**STATEMENT OF MATERIAL FACTS
ON WHICH NO GENUINE DISPUTE EXISTS**

The Applicant submits, in support of its motion for summary disposition of Contention Utah M, this statement of material facts as to which the Applicant contends that there is no genuine issue to be heard.

1. In Contention M, as admitted by the Licensing Board, the State alleges that PFS fails to accurately estimate the Probable Maximum Flood ("PMF") for Basin A (the eastern basin) and subsequently structures important to safety may be inadequately designed. Utah Contentions at 96.
2. In its Contention and its discovery responses, the State has not questioned PFS's estimate of the PMF for Basin B (the western basin). Liang Dec. at ¶ 6; Cole Dep. at 20.
3. The design basis PMF for Basin A is 85,000 cubic feet per second ("cfs"), which is 31% larger than the State's PMF estimate of 64,500 cfs. Liang Dec. at ¶ 8.
4. The design basis PMF was calculated in accordance with NRC regulatory requirements, using standard engineering methodologies and very conservative assumptions. Liang Dec. at ¶ 8.
5. The State does not question PFS's calculation of the 100 year flood. Cole Dec. at 27.

6. In its bases for Contention M, the State alleges that PFS's use of a drainage area of 26 sq. mi. is inappropriate because the drainage area is at least 240 sq. mi. PFS has increased the drainage area used in its calculation to 270 sq. mi., which the State has admitted is an appropriate drainage area for calculating the PMF. Liang Dec. at ¶ 6; Utah Sec. Amd. Disc. Resp. to PFS Disc. Req. at Cont. M, Req. for Adm. No. 1 at 5 and Int. No. 1 at 6; and Cole Dep. at 16.
7. The floodwaters from the design basis PMF will not impinge upon the PFSF. The floodwaters will be at least 5 ft. below the site's elevation and at least 6 ft. below the lowest structure important to safety, the northernmost row of cask storage pads. Liang Dec. at ¶ 11. See Utah Amd. Resp. to PFS Disc. Req. at Cont. M., Int. No. 2 at 7.
8. The PFSF will be protected from water that accumulates behind the access road by a flood diversion berm. The berm will be constructed to an elevation of 4507.5 ft., which is at least one foot higher than the elevation of the design basis PMF. Liang Dec. at ¶ 13.
9. The diversion berm will be designed so that water will not breach the berm where it is traversed by the access road. As the access road approaches the berm, the road will slope upwards to an elevation of 4507.5 ft, the height of the berm, and slope downwards after it passes over the berm. The ability of the berm to prevent floodwaters from approaching the PFSF will not be impacted because the height of the berm will remain at 4507.5 ft., one foot higher than the flood waters elevation. Liang Dec. at ¶ 14.
10. Under 10 C.F.R. § 72.3, an SSC important to safety is defined as an SSC that 1) maintains the conditions required to store spent fuel, 2) prevents damage to the spent fuel container during handling and storage, and 3) provides reasonable assurance that the spent fuel can be handled and stored without undue risk to the public. The access road is not a structure, system or component (SSC) important to safety because it meets none of these criteria. Cooper Dec. at ¶ 3.
11. If the access road is flooded or washed out during a design basis PMF event, there will be no adverse impact on the safe operation of the facility and therefore, the loss of the access road would pose no threat to public health and safety. The loss of the access road poses no threat to the integrity of the storage casks, and could not result in the release of radioactive material. The PFSF will be accessible by four wheel drive vehicles and foot traffic after the PMF event. Cooper Dec. at ¶ 4.

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CERTIFICATE OF SERVICE

I hereby certify that copies of the "Applicant's Motion for Summary Disposition of Utah Contention M – Probable Maximum Flood" and "Statement of Material Facts," dated June 28, 1999, and supporting Declarations from Dr. George Liang and Jerry Cooper were served on the persons listed below (unless otherwise noted) by e-mail, with exhibits thereto by facsimile, with conforming copies by U.S. Mail, first class, postage prepaid, this 28th day of June, 1999.

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ATTACHMENTS FOR

**APPLICANT'S MOTION FOR SUMMARY DISPOSITION
OF UTAH CONTENTION M – PROBABLE MAXIMUM FLOOD**

<u>Tab No.</u>	<u>Subject</u>
1.	Declaration of George Liang
2.	Declaration of Jerry Cooper
3.	Excerpts from Deposition of David B. Cole
4.	Excerpts from State of Utah's Second Amended Responses and Supplemental Responses to Applicant's First Set of Formal Discovery Requests