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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

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

**APPLICANT'S MOTION TO STRIKE PORTION OF TESTIMONY OF
DR. MARVIN RESNIKOFF AND MATTHEW R. LAMB ON UTAH H**

Pursuant to the Memorandum and Order of the Atomic Safety and Licensing Board ("Board" or "ASLB") of May 1, 2000,¹ Applicant Private Fuel Storage L.L.C. ("Applicant" or "PFS") files this motion to strike part of the May 15, 2000 "Prefiled Testimony of Dr. Marvin Resnikoff and Matthew R. Lamb on Behalf of the State of Utah Regarding Utah Contention H" ("Resnikoff/Lamb Utah H"). The part of the State's testimony subject to this motion concerns the alleged need to consider a "mixing zone above the casks," which is outside the scope of Contention Utah H ("Utah H"), and the alleged need to use a "3-D global model," which is both outside the scope of Utah H and contrary to the Commission's regulations.

I. BACKGROUND

Contention Utah H, as admitted by the Board, and modified by subsequent agreement of the parties, contains only Bases 3, 4, and 5, which state:

- 3. PFS's projection that average daily temperatures will not exceed 100°F fails to take into account the heat stored and radiated by the concrete pad and storage cylinders.
- 4. In projecting ambient temperatures, PFS fails to take into consideration the heat generated by the casks themselves.

¹ Memorandum and Order (Granting Joint Motion to Approve Stipulation on Contention Utah S and Outlining Administrative Matters) (May 1, 2000).

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5. PFS fails to account for the impact of heating the concrete pad on the effectiveness of convection cooling.²

The parties have litigated these issues for the past two and a half years, including a motion for summary disposition filed by PFS. As reflected in the summary disposition pleadings and the Board decision, the parties understood that these bases raised only “three factors” that the State claimed affected “the thermal interaction of the casks on the PFSF storage pad,” these were solar heating of the concrete pad and storage casks (Basis 3), radiative heat transfer from adjacent casks (Basis 4), and the effect of heating of the concrete pad on the convection cooling of the casks (Basis 5).³

Belatedly on April 7, 2000 – little more than one month before direct testimony was to be filed – the State presented PFS with a host of new issues, including, *inter alia*, the “mixing zone above the casks” and the need to use “a 3-D global model, which had never been mentioned by the State in its previous pleadings or communications.”⁴ PFS addresses neither the mixing zone above the casks nor the asserted need to use a 3-D global model in its direct testimony because they are both outside of scope of the remaining bases of Utah H.⁵

² See LBP-98-7, 47 NRC 142, 188-89 (1998); see also Joint Request to Extend Date for Completion of Depositions of State’s Experts for Utah Contention H at 3 (Mar. 28, 2000).

³ LBP-99-42, 50 NRC 295, at 297-303 (1999); Declaration of Dr. Marvin Resnikoff Regarding Material Facts in Dispute With Respect to Contention H, ¶¶12-18 (June 25, 1999) (“Resnikoff June 25, 1999 Declaration”).

⁴ See Memorandum from RWMA to D. Curran “Re: RWMA’s Evaluation of Holtec Thermal Analysis, Contention H” at 2 (“RWMA Memo”), Exhibit 2 to “Motion to Compel Applicant to Produce Supplemental Discovery Documents Regarding Utah Contention H and Request for Expedited Consideration” (May 24, 2000) (“Mot. Compel”). Mot. As the State acknowledges, the RWMA Memo was the first time that the concerns expressed therein had been raised by the State. Mot. Compel at 4.

⁵ See generally “Testimony of Dr. Krishna P. Singh and Dr. Indresh Rampall on Contention Utah H” (May 15, 2000). PFS did address in its testimony some of the State’s newly expressed concerns, including the effects of wind and increased solar insolation on the sides of the casks due to the larger spacing of the PFSF cask array than the Holtec generic array. PFS addressed these issues, even though they were never raised in the contention as filed and admitted by the Board, because they are relatively straightforward to address. Because PFS has chosen to analyze some issues outside the scope of the contention does not obligate PFS to address every issue outside the scope of the contention. To the extent PFS’s willingness to address these factors now confounds the State, PFS would have no problem if the Board were to find that none of the State’s newly expressed concerns are within the scope of Utah H (and PFS would modify its testimony accordingly).

The State refers to the mixing of air above the casks in Answer 11 of the Resnikoff/Lamb testimony in items 3 and 4 of its list of alleged “problems with the EHT Model Analysis.” Resnikoff/Lamb Utah H at 17. The “mixing zone” concerns in items 3 and 4 are discussed in more detail later in Answer 11 at pages 19-21.⁶ The need to use a “3-D global model” is discussed primarily in item 7 of answer 11 of the Resnikoff/Lamb testimony under the heading “Need for 3-D Global Model.”⁷ *Id.* at 24. For the reasons set forth below, the parts of Answers 10, 11 and 13 in the testimony of Dr. Resnikoff and Mr. Lamb concerning the “mixing zone” and “3-D global model” should be stricken.

II. DISCUSSION

A. Testimony Outside the Scope of a Contention Should Be Excluded

Under NRC regulations governing testimony at hearings, “[o]nly relevant, material, and reliable evidence which is not unduly repetitious will be admitted. Immaterial or irrelevant parts of an [otherwise] admissible document will be segregated and excluded so far as is practicable.” 10 C.F.R. § 2.743(c). Further, under NRC case law, “an intervenor is bound by the literal terms of its own contention,” and “the reach of a contention necessarily hinges upon its terms coupled with its stated bases.”⁸

If an intervenor could raise in its testimony new broad general issues beyond the specific bases of an admitted contention, then the construct of the Commission’s pleading

⁶ The discussion at pages 19-21 is set forth under the title for items 3 and 4 of the States’ list of alleged problems, “Neglect of consideration of mixing zone above the casks,” and “Neglect of heating of air above the casks as a result of solar insolation.” “Mixing zone” is again discussed in Answer 13, *id.* at 30-31, and the mixing of air above the casks is also mentioned in Answer 10 at the end of the first full paragraph on page 25.

⁷ The State’s briefly addresses the alleged need to use “a more global 3-D model” in item 6 of Answer 11, as well. *Id.* at 23.

⁸ *Vermont Yankee Nuclear Power (Vermont Yankee Nuclear Power Station)*, ALAB-876, 26 NRC 277, 284 (1987); *Public Service of New Hampshire (Seabrook Station, Units 1 and 2)*, ALAB-899, 28 NRC 93, 97 & n.11 (1988). An intervenor is also bound by the literal terms of its contention as reworded or amended by a licensing board, if so reworded or amended. *Id.*

rules, which require identification of specific bases with supporting facts, would become meaningless. So too would the Commission's rules allowing for summary disposition. As stated by the Appeal Board in Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station), ALAB-919, 30 NRC 29, 42 (1989), "[t]o permit reformulation of contentions every time their proponents file another pleading would be tantamount to rejecting all notions of an orderly and fair administrative process."⁹ Therefore, testimony that addresses subjects and issues that are beyond the scope of a contention should be stricken.

B. Testimony Contrary to the Commission's Regulations Should be Excluded

A Commission rulemaking may not be attacked by proof, argument, or other means in an adjudicatory proceeding. 10 C.F.R. § 2.758(a). Likewise, a contention seeking to litigate a generic determination established by Commission rulemaking is "barred as a matter of law."¹⁰ With regard to analysis method, where the analysis method utilized by the Applicant is permitted by Commission rulemaking, a contention "asserting that a different analysis or technique should be utilized" is an attack on the Commission's regulations, and barred from litigation by 10 C.F.R. § 2.758.¹¹ Testimony supporting an argument that is barred as a matter of law should be stricken.

C. The Resnikoff/Lamb Testimony on the "Mixing Zone Above the Casks" Should be Stricken As Irrelevant to Utah H

As set forth above, Utah H only has three remaining bases which raise "three factors" that the State claims affect the thermal interaction of the casks on the PFSF stor-

⁹As the Board has recognized, an intervenor seeking to expand the scope of an existing contention to raise new issues must follow the Commission's regulatory requirements for late-filed contentions. LBP-99-23, 49 NRC 485 (1999) (Granting Motion for Summary Disposition on Utah C); LBP-99-43, 50 NRC 306 (1999) (Denying Request for Admission of Late-Filed Amended Contention Utah C).

¹⁰ Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), LBP-93-1, 37 NRC 5, 30 (1993); Yankee Atomic Electric Co. (Yankee Nuclear Power Station), CLI-96-7, 43 NRC 235, 251 (1996).

¹¹ Metropolitan Edison Co. (Three Mile Island Nuclear Station, Unit No. 1), LBP-83-76, 18 NRC 1266, 1273 (1983).

age pad – i.e., solar heating of the concrete pad and storage casks (Basis 3), radiative heat transfer from adjacent casks (Basis 4), and the effect of heating of the concrete pad on the convection cooling of the casks (Basis 5). None of these bases mentions a “mixing zone above the casks,” or questions PFS’s analysis of what occurs in the air above the storage casks.¹² (Moreover, Basis 3 addresses solely the off-normal 100°F operating condition, which is no longer in dispute in this proceeding.¹³) These are the bases that the parties litigated for the first two and a half years of this proceeding, prior to the April 7, 2000 RWMA Memo. Not until that date was any mention made of a “mixing zone” above the casks.¹⁴

The fact that the “mixing zone” issue is outside the scope of Bases 3, 4, and 5 of Utah H is confirmed by the Board’s decision denying summary disposition with respect to those bases. Based on its evaluation of the declaration of Dr. Marvin Resnikoff filed by the State, the Board concluded that “material factual disputes still remain regarding the central assertion in subparts three, four, and five of contention Utah H that cask and pad radiative heat have not been considered in the analysis supporting the PFS application.” LBP-99-42, 50 NRC at 304 (emphasis added). In reaching its conclusion, the Board identified the specific remaining issues raised by Dr. Resnikoff on which the Board based its denial of summary disposition; none of these issues mentioned any alleged “mixing zone above the casks.”¹⁵

¹² Bases 3, 4, and 5 are provided in their entirety in Applicant’s Response to State of Utah’s Motion to Compel Production of Certain Documents Under Contention Utah H at 5 n.10 (May 30, 2000) (“Applicant’s Response”).

¹³ See Resnikoff/Lamb Dep. at 99-100 (attached to S. Turk May 26 letter to the ASLB); see also Testimony of Dr. Krishna P. Singh and Dr. Indresh Rampall on Contention Utah H at 8-9 (May 15, 2000).

¹⁴ The NRC Staff agrees that it had never heard of the “mixing zone” issue prior to the April 7, 2000 memorandum. See Letter from S. Turk to the ASLB at 2 (May 26, 2000).

¹⁵ See Applicant’s Response to Motion to Compel at 7 n.13 for analysis of the Board’s decision showing that none of the material issues of fact remaining in dispute concerned any alleged mixing zone above the casks. The State may use the same unduly expansive reading of the contention, as evidenced in the State’s recent motion to compel documents for Utah H, to argue that the “mixing zone” (and the “3-D global model”) are within the scope of Utah H. As discussed in Applicant’s Response thereto (pages 8-9), the

The “mixing zone” issue is also beyond the scope of Utah H, because it is an issue of generic import, and not a PFSF site-specific issue. Nowhere has the State identified site specific factors that make mixing above the casks an issue unique to the PFSF, as opposed to the generic cask arrays approved by the Commission in the Certificate of Compliance for the HI-STORM 100. See 65 Fed. Reg. 25,241 (May 1, 2000). Because the issue of the “mixing zone” is a generic issue, it is “not subject to attack...in [this] adjudicatory proceeding.” 10 C.F.R. § 2.758(a).

Thus, the States’ new assertion of the need to analyze the “mixing zone” above the cask is outside the scope of Utah H. Nowhere in Utah H, nor in the State’s opposition to summary disposition, is there any explicit or implicit mention of, or reference made to, the issue of “the mixing zone above the casks.” Therefore, the Board should strike as irrelevant to Utah H that part of the Resnikoff/Lamb testimony in Answers 10, 11 and 13 concerning the “mixing zone.”

D. The Resnikoff/Lamb Testimony on the Need to Use a “3-D Global Model” Should be Stricken As Irrelevant to Utah H

1. The Need to Use a “3-D Global Model” is Outside the Scope of Utah H

Like “mixing zone above the casks,” the need to use a “3-D global model” is a new issue that was never raised in the contention as admitted. None of three remaining bases assert that PFS is required to use a “3-D global model” of the entire cask array to perform its thermal analysis of the three factors raised in the State’s contention. The fact that the need to use a “3-D global model” is outside the scope of Bases 3, 4, and 5 of Utah H is confirmed by the State’s filing and the Board’s decision denying summary disposition with respect to those bases. Neither the declaration Dr. Resnikoff nor the

State’s reading conflicts with governing NRC precedent discussed above in Section A and would render meaningless NRC pleading requirements requiring identification of specific bases with supporting facts.

Board's decision makes any allegation that PFS must use a "3-D global model" to analyze the issues raised in the State's remaining three bases.¹⁶

The State's asserted need to use a 3-D global model is also beyond the scope of Utah H because it does not take issue with whether the Holtec methodology has addressed and "taken into account" the three considerations raised in Bases 3, 4 and 5. As made clear by the Board in distinguishing its grant of summary disposition on Utah C from its denial of summary disposition on Utah H, the determinative issue under Utah H does not concern the overall "validity of the revised thermal analysis," but whether the analysis "took into account" the various considerations the State had alleged were not included as part of the thermal analysis supporting the initial application. LBP-99-42, 50 NRC at 302-303. The State's asserted need for a 3-D global model goes to the validity of Holtec's revised analysis, not whether the analysis actually addressed the factors in Bases 3, 4 and 5 which is the issue in Utah H as reflected by the Board's decision on the motion for summary disposition.

Finally, the need to use a "3-D global model" is beyond the scope of Utah H because – as discussed further below – it is a generic issue addressed in the general rule-making approving the Certificate of Compliance for the HI-STORM 100, and therefore "not subject to attack...in [this] adjudicatory proceeding." 10 C.F.R. § 2.758(a).

Thus, the State's asserted need to use a "3-D global model" is outside the scope of Utah H. Nowhere in Utah H, nor in the State's opposition to summary disposition, is there any explicit or implicit mention of, or reference made to, the asserted need to use a 3-D global model. Therefore, the Board should strike as irrelevant to Utah H that part of the Resnikoff/Lamb testimony in Answer 11 concerning the need to use a "3-D global model."

¹⁶ See LBP-99-42, 50 NRC 295, 304 (1999); Resnikoff June 25, 1999 Declaration. See also Applicant's Responses to Motion to Compel at 7 n.13.

2. The Need to Use a “3-D Global Model” is Contrary to the Commission’s Regulations

The Commission’s rulemaking approving the Certificate of Compliance for the HI-STORM 100 considered and accepted Holtec’s methodology for analysis of the effect for the same issues raised by the State in Bases 3, 4, and 5 of Utah H, which involve the effect of “cask and pad radiative heat,” LBP-99-42, 50 NRC at 302, 303 (emphasis added). Because of the Holtec methodology to analyze these effects was found acceptable by the Commission through rulemaking, the States asserted need for a 3-D global model is barred from litigation in this proceeding.

In its thermal analysis supporting the HI-STORM general rulemaking, Holtec employed a methodology using, *inter alia*, the FLUENT code with a single cask with a hypothetical reflecting and insulated boundary.¹⁷ In response to a comment by the State of Utah on the HI-STORM general rulemaking,¹⁸ the Commission affirmatively accepted the Holtec analysis as a permissible methodology to evaluate the effect of radiative heat from adjacent casks (*i.e.*, cask radiative heat), stating:

Response: The NRC agrees that one method for calculating the impact of neighboring casks is to model the neighboring casks in the array. Another acceptable method, that was used by the applicant, is to model the limiting (highest temperature) cask and assume that all the radiation it emits is reflected back. This analysis bounds the amount of radiation that neighboring casks can impose on the center cask. This bounding analysis is acceptable.

65 Fed. Reg. at 25,257. Thus, the Commission determined that Holtec’s methodology using the FLUENT code to analyze the effect of adjacent casks is permissible and effectively determined that use of a “3-D global model” is not required to analyze the effect of heat from adjacent casks.

¹⁷ See Singh/Rampall Utah H at 14-16 (Q25-Q29).

¹⁸ See Letter from C. Nakahara to E. Julian re: State of Utah’s Comments on NRC Proposed Approval of the Holtec HI-STORM 100 Cask System, “at 4-5 Docket No. 72-1014 (Dec 6, 1999).

Similarly, in response to another comment by the State on the general rulemaking¹⁹, the Commission also found acceptable Holtec's methodology used to determine the effect of heating of the concrete pad (i.e., pad radiative heat), stating:

Comment I.20: One commenter stated that the Holtec model does not appear to take into account that the heating of the concrete pad is likely to diminish the "chimney effect" of the intake and outlet vents.

Response: In a response to other inquiries, Holtec performed calculations to quantify the effect of concrete pad heating on the cask performance. For the bounding 125°F ambient temperature event, neglecting the heat reflected by the pad resulted in a reduction of cask surface temperature of 10°F and a reduction in peak clad temperature of 6°F. These temperature differences illustrate that the concrete pad has negligible impact on the cask.

65 Fed. Reg. at 25,257. Thus, the Commission determined that Holtec's methodology using the FLUENT code to analyze the effect of heating of the concrete pad on peak cladding temperatures is permissible.

Holtec used the same methodology to analyze the effect of adjacent casks and heating the concrete pad in the PFS thermal analyses (e.g., the EHT model and the PFS-EHT model).²⁰ Even assuming that the Holtec thermal analysis needs to be tailored to use PFSF-specific input data including cask spacing, ambient temperature, and solar insolation, the methodology used to do the PFS thermal analysis is the same as that found permissible by the Commission through general rulemaking. The State directly acknowledges that "PFS relies on the thermal analysis that Holtec prepared in support of its application for a CoC for the HI-STORM cask system" and "[t]herefore, discussing the thermal analysis of the PFS facility is equivalent to discussing the Holtec thermal analysis for the HI-STORM 100 cask system, including the EHT model." Resnikoff/Lamb Utah H at 9-10. Yet, even though the Commission has found this Holtec methodology to be permissible by general rulemaking, the State attempts to assert in its testimony that "the

¹⁹ See State's Comments on General Rulemaking at 5.

²⁰ See Singh/Rampall Utah H testimony at 29-30 (Q64-Q66).

EHT Model is inherently incapable of sufficient conservatism” and that therefore “one needs a more sophisticated 3-D model.” *Id.* at 24 (emphasis added).

The State’s assertion that a different analysis methodology (a “3-D global model”) needs to be utilized in place of the Holtec methodology, which has been found permissible by the Commission through rulemaking, is an attack on the Commission’s regulations and barred from litigation. 10 C.F.R. § 2.758; Three Mile Island, LBP-83-76, 18 NRC at 1273). Thus, the Board should strike as contrary to the Commission’s regulation that part of the Resnikoff/Lamb testimony in Answer 11 asserting the need to use a “3-D global model.”²¹

III. CONCLUSION

For the foregoing reasons, PFS respectfully requests that the Board strike the part of the testimony of Dr. Marvin Resnikoff and Matthew R. Lamb concerning the need to analyze the mixing zone above the casks as outside the scope of Utah H and the need to use a 3-D global model as outside the scope of Utah H and contrary to NRC regulations.

Respectfully submitted,



Jay E. Silberg
Ernest L. Blake, Jr.
Paul A. Gaukler
SHAW PITTMAN
2300 N Street, N.W.
Washington, DC 20037
Counsel for Private Fuel Storage L.L.C.

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²¹ This rule of law prohibits contentions asserting that the applicant should use a different analysis methodology to perform the applicant’s evaluation. This does not, however, limit other parties from performing their own independent confirmatory analyses to confirm or contradict the applicant’s results (which the State has not done here). For example, the NRC Staff in this very case has used a 3-dimensional approach to assure itself as to the validity of the applicant’s analysis, but has not asserted that a 3-D approach is the only acceptable tool for analysis.

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CERTIFICATE OF SERVICE

I hereby certify that copies of Applicant's Motion to Strike Portion of Testimony of Dr. Marvin Resnikoff and Matthew R. Lamb on Utah H 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 31st day of May 2000.

G. Paul Bollwerk III, Esq., Chairman
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: GPB@nrc.gov

Dr. Jerry R. Kline
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: JRK2@nrc.gov; kjerry@erols.com

Dr. Peter S. Lam
Administrative Judge
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
e-mail: PSL@nrc.gov

* Susan F. Shankman
Deputy Director, Licensing & Inspection
Directorate, Spent Fuel Project Office
Office of Nuclear Material Safety &
Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attention: Rulemakings and Adjudications
Staff
e-mail: hearingdocket@nrc.gov
(Original and two copies)

Catherine L. Marco, Esq.
Sherwin E. Turk, Esq.
Office of the General Counsel
Mail Stop O-15 B18
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
e-mail: pfscase@nrc.gov

John Paul Kennedy, Sr., Esq.
Confederated Tribes of the Goshute
Reservation and David Pete
1385 Yale Avenue
Salt Lake City, Utah 84105
e-mail: john@kennedys.org

Diane Curran, Esq.
Harmon, Curran, Spielberg &
Eisenberg, L.L.P.
1726 M Street, N.W., Suite 600
Washington, D.C. 20036
e-mail: dcurran@harmoncurran.com

* By U.S. mail only

* Adjudicatory File
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Denise Chancellor, Esq.
Assistant Attorney General
Utah Attorney General's Office
160 East 300 South, 5th Floor
P.O. Box 140873
Salt Lake City, Utah 84114-0873
e-mail: dchancel@state.UT.US

Joro Walker, Esq.
Land and Water Fund of the Rockies
2056 East 3300 South, Suite 1
Salt Lake City, UT 84109
e-mail: joro61@inconnect.com

Danny Quintana, Esq.
Skull Valley Band of Goshute Indians
Danny Quintana & Associates, P.C.
68 South Main Street, Suite 600
Salt Lake City, Utah 84101
e-mail: quintana@xmission.com



Paul A. Gaukler