

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

May 11, 1999

<sup>1</sup>10 C.F.R. § 72.106(b) provides that “[a]ny individual located on or beyond the nearest boundary of the controlled area shall not receive a dose greater than 5 rem to

and will be complied with in the following respects:

1. License Application makes selective and inappropriate use of data from NUREG-1536 for the fission product release fraction;
2. License Application makes selective and inappropriate use of data from SAND80-2124 for the respirable particulate fraction.
3. The dose analysis in the License Application only considers dose due solely to inhalation of the passing cloud. Direct radiation and ingestion of food and water are not considered in the analysis.

LBP-98-7, 47 NRC 142, 251 (1998). The dose calculations challenged by the State are reported in Section 8.2.7.2 of the Safety Analysis Report ("SAR"), which PFS submitted as a part of its license application under 10 C.F.R. § 72.24.

The basis for Contention C asserts that PFS inappropriately relies on NUREG-1536, Standard Review Plan for Dry Cask Storage Systems (January 1997), in assuming that 90% of the volatile fission products that would be released from the spent fuel in a postulated loss of containment accident would not be released to the environment. State of Utah's Contentions at 19-20 (November 23, 1997). PFS inconsistently applies SAND 80-2124, Transportation Accident Scenarios for Commercial Spent Fuel (Sandia National Laboratories: 1981), which assumes an initial release fraction 200 times greater. The assumption is also based on a transportation accident scenario, in which the cask is breached through a high-velocity impact, which is inconsistent with the scenario evaluated in the SAR of an accident during onsite storage.

The basis for Contention C also asserts that PFS incorrectly or selectively

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the whole body or any organ from any design basis accident."

interprets SAND-80-2124, in assuming that only 5% of the release fraction of Co-60 and Sr-90 will be respirable. PFS does not explain why it is appropriate to use this particular assumption from the Sandia Report, but not the assumption regarding the initial release to the plenum, which would have yielded a higher dose than calculated by PFS. Moreover, Sandia's assumption of a 5% respirable release fraction is based on a transportation accident involving impact and fire, in which some irradiated fuel will flake off in large pieces and not be respirable. While this may be an appropriate assumption for a transportation accident, PFS provides no evidence that it is an appropriate assumption for the fuel failure accident evaluated in the SAR. In fact, it is reasonable to anticipate that in an onsite accident not involving a high-velocity impact that breaks fuel into large chunks, particulates in the gap between the canister and the cask will be of a smaller size, and therefore a greater percentage will be respirable. State's Contentions at 19-20.

The basis of Contention C also explains that the SAR reports dose calculations only for inhalation from the passing cloud, and fails to consider other relevant pathways, such as direct radiation from cesium deposited on the ground, and ingestion of food and water or incidental soil ingestion. State's Contentions at 21. This violates 10 C.F.R. § 72.24(m).

On December 10, 1998, the NRC Staff sent PFS a Request for Additional Information ("RAI"). Among other things, RAI 7-1 asked PFS to revise its calculations

regarding accident impacts, using release fractions and methodology contained in Interim Staff Accident Dose Calculations Guidance-5 (October 6, 1998) ("ISG-5"), in order to show compliance with the accident dose limits in 10 CFR 72.106(b). ISG-5 suggests an alternative means of performing dose calculations, which does not rely on NUREG-1536 or SAND 80-2124. The alternative method is based on NUREG-1617, a draft Standard Review Plan for Transportation Packages for Spent Nuclear Fuel (March 1998).

By letter dated February 10, 1999, PFS submitted its response to the December 10, 1998, RAI. Letter from John D. Parkyn to NRC ("RAI Response"). The RAI Response summarizes PFS's revised dose calculations, which now rely on NUREG-1617 rather than NUREG-1536 or SAND 80-2124.<sup>2</sup> As described in the Affidavit of William Hennessy, attached to the Applicant's Motion, the RAI Response "conservatively assumes that 100% of [the particulates or volatile fission products] assumed to be released from the spent fuel rods are available for release from the canister." Hennessy Affidavit, ¶ 6. According to PFS, it also assumes that the respirable fraction of the material released for all radionuclides is 100%. ¶, par. 7.

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<sup>2</sup>The calculations, submitted by letter dated February 11, 1999 from John L. Donnell to Mark Delligatti, NRC, were performed by PFS's contractor, Dade Moeller and Associates, as described in two reports that are also attached to the RAI Response: UR-010, "RESRAD Pathway Analysis Following Deposition of Radioactive Material From the Accident Plumes" (February 9, 1999), and UR-009, "Accident Dose Calculations at 500 m and 3219 m Downwind for Canister Leakage Under Hypothetical Accident Conditions for the Holtec MPC-68 and SNC TranStor Canisters" (February 9, 1999).

PFS's RAI Response also includes direct gamma and food and incidental soil ingestion from some radionuclides, using DOE's RESRAD code, assuming the deposited material is mixed with the top 1 cm of soil.<sup>3</sup> Hennessy Affidavit, ¶ 8; RAI Response at 3. Doses are calculated at 500 meters and two miles.

Despite these alleged new conservatisms, the results of the dose calculations in the RAI Response are between 5 mrem and 80 mrem at the 500 m location, which is below the 547 mrem calculation reported in the SAR and well below the 5 rem dose limits in 10 C.F.R. § 72.106(b). See spreadsheets attached to Dade Moeller reports UR-009 and UR-010. Mr. Hennessy's Affidavit fails to mention the additional change in the analysis that yields such a surprising result: rather than adhering to the SAR's assumption that the cask breaks open, PFS's RAI Response assumes that the cask leaks very slowly, based on Table 4-1 of NUREG-1617. Based on ISG-5, PFS also makes several other questionable assumptions that are different from the assumptions reported in the SAR, or not discussed in the SAR: that the release lasts for only 30 days, that the person receiving the dose stands at the fence line (500 m) for 2,000 hours/year, and that the deposited material is mixed with the top 1 cm of soil.

Although the calculations and assumptions in the RAI Response differ from the calculations and assumptions in the SAR in a number of significant respects, the RAI Response does not include any amendment to the PFS SAR. There have been no

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<sup>3</sup>For the thyroid dose, PFS considers iodine-29, but ignores chlorine-36, which is also present in irradiated fuel.

changes to the dose calculations submitted in PFS's original SAR application.

Despite the lack of any change to PFS's License Application, PFS filed the instant summary disposition motion on April 21, 1999, on the ground that its RAI Response has mooted the concerns raised in Contention C. PFS has also refused to answer any of the State's discovery requests with respect to Contention C, on the same grounds.<sup>4</sup>

### ARGUMENT

#### I. THE APPLICANT HAS FAILED TO SHOW THE ABSENCE OF A MATERIAL FACTUAL DISPUTE REGARDING CONTENTION C.

PFS argues that by submitting the RAI Response, which no longer relies on NUREG-1536 or SAND 80-2124, and which now includes doses for groundshine and the ingestion pathway, PFS has rendered the issues in Contention C "moot."

Applicant's Motion at 3. The argument has no merit. The State's Contention C is based on the Applicant's License Application, which has not changed one whit with respect to dose calculations. The only thing that has changed is that the NRC Staff and PFS have had subsequent correspondence showing that neither party has confidence in the adequacy of the SAR's representations, and that together they are searching for a

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<sup>4</sup>Applicant's Objections and Non-Proprietary Responses to State's First Requests for Discovery (April 21, 1999) ("Applicant's Objections"). The State filed a Motion to Compel against PFS on April 30, 1999, to which the Applicant responded on May 7, 1999. The Motion is still pending.

new way to conduct the dose analysis and thereby circumvent the contention. If anything, this new information further supports Contention C. Moreover, even if PFS were to amend its application with respect to Subpart 3 of the contention, such an amendment would not moot the contention, because there is still a factual dispute regarding whether the Applicant has made a realistic evaluation of the dose from direct radiation and inhalation of food and water.

**A. The Contention Is Not Moot Because PFS Has Not Amended Its Application.**

PFS apparently believes that by submitting the RAI Response, it effectively changed its SAR. See PFS's response to the State's first Request for Admissions ("commitments, representations, and statements made by the Applicant in response to the NRC Staff [RAIs] have the same effect as commitments, representations and statements made by the Applicant in its ISFSI Part 72 License Application.") Applicant's Objections at 3. Similarly, Mr. Hennessy's affidavit asserts that ISG-5 "constitutes the new PFSF licensing basis for accident dose consequences." Hennessy Affidavit, ¶ 4. Believing does not make it so, however. PFS's supposition is utterly inconsistent with NRC regulations and practice, and with PFS's own practice in this case.

First, PFS's presumption that the RAI Response effectively amends PFS's license application and thereby moots Contention C is inconsistent with NRC regulations and case law governing licensing hearings. The NRC has made it quite

clear in its regulations and case law that the focus of a licensing hearing is the application. Thus, for instance, the regulations governing admissibility of contentions require intervenors to focus their dispute with the applicant on "specific portions of the application." 10 C.F.R. § 2.714(b)(2). Consistent with this regulation, the Licensing Board held in LBP-98-7 that "a contention that fails to directly controvert the license application at issue . . . is subject to dismissal." LBP-98-7 at 181. Also consistent with the regulation are the decisions cited by the Applicant for the proposition that summary disposition is warranted where "events" occurring after the admission of a contention render it "moot." Applicant's Motion at 17 and note 17. The "events" held to have mooted a contention in *Public Service Company of New Hampshire* (Seabrook Station, Units 1 and 2), CLI-92-8, 35 NRC 145, 150-54 (1991) and ALAB-945, 33 NRC 175, 177 (1991), consisted primarily of amendments to an emergency plan, which is part of the application that must be submitted with a Part 50 license application. The amendments removed sheltering as an emergency response option, and the Commission approved a Licensing Board decision that the amendments, coupled with corroborating statements by officials responsible for carrying out the plan, had mooted a contention challenging the adequacy of sheltering as a protective measure. See LBP-91-24, 33 NRC 446, 447 (1991). To hold that mere correspondence can moot a contention that is specifically addressed to and based on the license application would be utterly inconsistent with these requirements and

precedents.<sup>5</sup>

To uphold PFS's objection would also be unfair and prejudicial to the State. A licensing proceeding must be conducted with procedural fairness and regularity, including clarity with respect to those events that trigger intervenor obligations. The State has not considered it necessary to amend Contention C in order to maintain its vitality, because there has been no amendment to the license application. In making this determination, the State reasonably relied on long-established Commission precedent that the application itself is the focus of the hearing, and that changes to the application itself are the triggering events which require amendments to contentions. To allow PFS to now shift the target for amending contentions such that a mere piece of correspondence can be considered to moot Contention C would be most unfair and prejudicial to the State.

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<sup>5</sup>*Baltimore Gas & Electric Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 and 2), CLI-98-25, 48 NRC 325, 350 (1998), cited in the Applicant's Response to the State's Motion to Compel at 6-7 and note 13, does not support the Applicant's position that the State should have filed an amended contention with respect to the RAI Responses. In that proceeding, no contentions had been filed or admitted. The petitioner argued that RAI correspondence between the NRC Staff and the licensee demonstrated that the application was not ready for litigation. The Commission rejected the argument, finding the application "sufficiently complete for purposes of docketing, and for starting the adjudicatory process." *Id.* The Commission also stated that intervenors were "free" to raise contentions based on inadequacies in the application that were identified in the RAIs. *Id.* The Commission emphasized, however, that "it is the license application, not the NRC staff review, that is at issue in our adjudications." *Id.* Here, Contention C was based on the license application, and was found to be admissible by the Licensing Board on that basis. The State's right to litigate its properly pled and duly admitted contention cannot be vitiated by mere correspondence between the Applicant and the NRC Staff.

PFS's presumption that it has mooted Contention C is also inconsistent with long-established NRC Staff practice. It is the State's experience that the NRC generally requires such commitments to be accompanied by change sheets showing the amendment to the application. For example, this practice was consistently followed by the applicant, Louisiana Energy Services, in the license amendment proceeding for the proposed Claiborne Enrichment Center. This practice is necessary because once a license is issued, the license application generally becomes the blueprint for the details of what the license requires. If license applications could be amended merely by correspondence, it would be difficult to determine what exactly a license consists of once it is issued.

Finally, PFS itself has followed the practice of amending its application when it seeks to change the licensing basis for the proposed PFS facility. See, for example, Revision 1 to the PFS SAR and Emergency Plan, submitted by letter dated May 22, 1998 from John D. Parkyn to NRC, which included instructions for replacing Rev. 0 pages with Rev. 1 pages. Additionally, in a February 11, 1999, RAI response to an RAI regarding the design of the gantry crane, PFS attached change pages to the Topical Report which is attached as an Appendix to its license application. Appendix B Supplement to Generic Licensing Topical Report, EDR-1, Summary of Facility Specific Crane Data Supplied by Ederer Incorporated for Private Fuel Storage, LLC, Private Fuel Storage Facility, Skull Valley, Utah, 150/25 Ton Semi-Gantry Crane,

P.O. # 0599602-023, Ederer So.O. No. F2662, Revision 1 (12/9/98).<sup>6</sup> Apparently recognizing the inconsistency of its position, PFS announced in its response to the State's Motion to Compel that it intends to file amendments to its license application on May 14, 1999. Applicant's Response at 6, note 12.

Accordingly, in the absence of any revision to the PFS License Application or SAR that would change its current dose calculations, PFS has done nothing to moot Contention C. It must be presumed that PFS continues to rely on NUREG-1536 and SAND80-2124, and that PFS has not revised its application to provide additional dose calculations other than for the passing cloud. If and when PFS files amendments to its License Application, the State will evaluate whether the amendments have affected its contentions, and file amended contentions as necessary.

**B. Even If PFS Could Be Considered to Have Amended Its Application, The Contention Is Not Moot Because a Material Dispute Exists With Respect to the Reasonableness of PFS's Dose Calculations.**

Even assuming for purposes of argument that PFS could be considered to have amended its application, Contention C is not moot because a material dispute exists with respect to the reasonableness of PFS's assumptions regarding the opening of a cask during an accident, as well as its evaluation of direct and ingestion radiation doses. Moreover, the State has not yet completed discovery which is necessary to the resolution of this contention.

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<sup>6</sup>This report is proprietary, and thus it is not attached.

Contention C must be read *with* its bases, not apart from them. As discussed above at pages 2-4, the basis of Contention C explains the nature of the State's concerns regarding PFS's improper reliance on NUREG-1536 and SAND-80-2124, *i.e.*, that PFS is inconsistent in its assumptions regarding the nature of the bounding accident that is analyzed, *i.e.*, whether the cask lid is removed, what portion of the cladding is open to the environment, and the fraction of respirable particles that is released. PFS's assumptions regarding the particulate release fraction and the respirable particulate fraction are based on the behavior of the materials under predicted accident conditions. State of Utah's Contentions at 19-20 (November 23, 1997). In its SAR, PFS assumes that the lid is removed from the cask and that 100% of the cladding is exposed to the environment. Then, PFS asserts specific fractions of particulates are considered respirable. In its most recent RAI calculations, PFS assumes only that the cask has a minor leak. This response does not resolve the State's dispute with PFS regarding the inconsistency of PFS's assumptions, but rather amplifies it.

With respect to groundshine and inhalation doses, Subpart 3 of Contention C asserts that PFS's dose analysis "only considers dose due solely to inhalation of the passing cloud. Direct radiation and ingestion of food and water are not considered in the analysis." In contrast to the first two subparts of Contention C, for which PFS apparently seeks to substitute an entirely different analysis using different assumptions from the ones challenged in the contention, PFS has attempted to provide the

information sought in the third part of the contention. Thus, Mr. Hennessy's affidavit asserts in paragraph 8 that PFS has done a "new calculation" which "includes direct exposure to contaminated ground, inhalation of resuspended radioactive material, ingestion of milk and beef following grazing, and ingestion of soil."

The information provided in PFS's RAI Response, however, does not demonstrate that PFS's calculations have taken direct radiation and ingestion pathways into account in a reasonable and thorough fashion. PFS cannot moot the contention merely by stating that these factors have been considered. The contention presupposes that any consideration given to direct and ingestion pathways must be adequate to account for reasonably likely radiation doses.

Here, PFS's calculations regarding groundshine and ingestion of radionuclides are based on a number of questionable assumptions. First, PFS assumes, apparently based on ISG-5, that the release lasts for only 30 days. Neither PFS nor the NRC Staff has provided any rationale for this assumption, and the State has submitted discovery requests to PFS seeking an explanation. These discovery requests are the subject of the State's pending Motion to Compel, which explains the relevance of the information requested. The State also plans to submit similar discovery requests to the NRC Staff. Moreover, the assumption is inconsistent with the fact that there is no required offsite emergency response for the PFS facility. Under the circumstances, it is inappropriate to assume that any radioactive release will be cleaned up after 30 days.

Second, and again apparently based on ISG-5, PFS assumes that the person receiving the dose is located at the fence line (500 m) for only 2,000 hours/year. The reason for this assumption is unclear. Perhaps PFS assumes that the person will not stay at the fenceline all year because someone will warn him or her away. Perhaps PFS assumes that the person is a worker. Again, the State has submitted discovery requests to PFS and plans to submit similar discovery requests to the NRC Staff regarding this issue. In any event, either assumption would be unreasonable. The maximally exposed individual would be a resident near the fence post, because by definition, the Applicant has no control over an uncontrolled area. Anybody could go and live there. The question is not who is there now, but who might be there later. Moreover, in the absence of any offsite emergency response measures that would provide for a warning to the neighbor, it must be assumed that the neighbor remains there throughout the duration of the release.

In addition, while the new dose calculations consider the dose to the thyroid from iodine-129, they do not consider the thyroid dose from chlorine-36. It is common knowledge that chlorine-36 is also present in irradiated fuel, and yet it is not included in PFS's calculations.

Finally, PFS assumes, based on an unexplained assumption in ISG-5, that the deposited material is mixed with the top 1 cm of soil. The State has inquired regarding the basis for the assumption in its discovery requests to PFS and intends to make

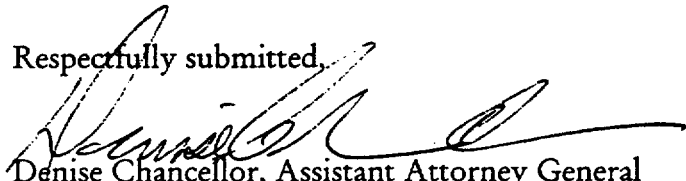
similar discovery requests to the Staff. The State believes that this assumption is also unreasonable, because deposited material, in an arid region, may remain on the surface and therefore produce a stronger gamma dose.

## CONCLUSION

For the foregoing reasons, the Applicant has failed to show the absence of a material factual dispute regarding Contention C. Therefore, its summary disposition motion should be denied.

DATED this 11<sup>th</sup> day of May, 1999.

Respectfully submitted,



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CERTIFICATE OF SERVICE

I hereby certify that copies of STATE OF UTAH'S OPPOSITION TO APPLICANT'S MOTION FOR SUMMARY DISPOSITION OF CONTENTION C, STATEMENT OF MATERIAL FACTS IN DISPUTE REGARDING CONTENTION C, and DECLARATION OF DR. MARVIN RESNIKOFF IN SUPPORT OF STATE OF UTAH'S OPPOSITION TO APPLICANT'S MOTION FOR SUMMARY DISPOSITION OF CONTENTION C were served on the persons listed below by electronic mail (unless otherwise noted) with conforming copies by United States mail first class, this 11th day of May, 1999:

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(United States mail only)



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Assistant Attorney General  
State of Utah

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of:

)  
) Docket No. 72-22-ISFSI  
)

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

) ASLBP No. 97-732-02-ISFSI  
)

) May 1, 1999  
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STATEMENT OF MATERIAL FACTS IN DISPUTE  
REGARDING CONTENTION C

1. The dose analysis contained in PFS's Safety Analysis Report ("SAR") makes selective and inappropriate use of data from NUREG-1536 for the fission product release fraction.
2. The dose analysis in PFS's SAR makes selective and inappropriate use of data from SAND80-2124 for the respirable particulate fraction.
3. The dose analysis in PFS's License Application only considers dose due solely to inhalation of the passing cloud. Direct radiation and ingestion of food and water are not considered in the analysis.
4. The basis for Contention C asserts that PFS inappropriately relies on NUREG-1536, Standard Review Plan for Dry Cask Storage Systems (January 1997), in assuming that 90% of the volatile fission products that would be released from the spent fuel in a postulated loss of containment accident would not be released to the environment. State of Utah's Contentions at 19-20 (November 23, 1997). This assumption is inconsistent with SAND 80-2124, Transportation Accident Scenarios for Commercial Spent Fuel (Sandia National Laboratories: 1981), which assumes an initial release fraction 200 times greater. The assumption is also based on a transportation accident scenario, in which the cask is breached through a high-velocity impact, which is inconsistent with the scenario evaluated in the SAR of an accident during onsite storage.
5. The basis for Contention C also asserts that PFS incorrectly or selectively interprets SAND-80-2124, in assuming that only 5% of the release fraction of Co-60

and Sr-90 will be respirable. PFS does not explain why it is appropriate to use this particular assumption from the Sandia Report, but not the assumption regarding the initial release to the plenum, which would have yielded a higher dose than calculated by PFS. Moreover, Sandia's assumption of a 5% respirable release fraction is based on a transportation accident involving impact and fire, in which some irradiated fuel will flake off in large pieces and not be respirable. While this may be an appropriate assumption for a transportation accident, PFS provides no evidence that it is an appropriate assumption for the fuel failure accident evaluated in the SAR. In fact, it is reasonable to anticipate that in an onsite accident not involving a high-velocity impact that breaks fuel into large chunks, particulates in the gap between the canister and the cask will be of a smaller size, and therefore a greater percentage will be respirable. State's Contentions at 19-20.

6. The basis of Contention C also explains that the SAR reports dose calculations only for inhalation from the passing cloud, and fails to consider other relevant pathways, such as direct radiation from cesium deposited on the ground, and ingestion of food and water or incidental soil ingestion. State's Contentions at 21. This violates 10 C.F.R. § 72.24(m).

7. PFS has not altered the dose analysis in its License Application or SAR with respect to any of the representations challenged in the subparts of Contention C that are summarized in paragraphs 1 through 3 above.

8. PFS has not altered the dose analysis its License Application or SAR with respect to any of the representations challenged in the basis of Contention C, as summarized in paragraphs 4 through 6 above.

9. PFS has provided no information that would justify the SAR's reliance on NUREG-1536 or SAND-80-2124, nor has it provided any information that would justify its failure to consider groundshine and ingestion doses in the SAR.

10. PFS's assumptions regarding the particulate release fraction and the respirable particulate fraction are based on the behavior of the materials under predicted accident conditions. State of Utah's Contentions at 19-20 (November 23, 1997). In its SAR, PFS assumes that the lid is removed from the cask and that 100% of the cladding is exposed to the environment. Then, PFS asserts specific fractions of particulates are considered respirable. In its most recent RAI calculations, PFS assumes only that the cask has a minor leak. The basis for the assumption is unexplained. Thus, PFS's RAI Response does not resolve the State's concern regarding the inconsistency of PFS's assumptions, but rather amplifies it.

11. PFS's affiant, Mr. Hennessey, asserts in paragraph 8 that PFS has done a "new calculation" which "includes direct exposure to contaminated ground, inhalation of resuspended radioactive material, ingestion of milk and beef following grazing, and ingestion of soil." The information provided in PFS's RAI Response, however, does not demonstrate that PFS's calculations have taken direct radiation and ingestion pathways into account in a reasonable and thorough fashion. PFS's calculations regarding groundshine and ingestion of radionuclides are based on a number of questionable assumptions.

12. First, PFS assumes, apparently based on ISG-5, that the release lasts for only 30 days. Neither PFS nor the NRC Staff has provided any rationale for this assumption, and the State has submitted discovery requests to PFS seeking an explanation. These discovery requests are the subject of the State's pending Motion to Compel, which explains the relevance of the information requested. The State also plans to submit similar discovery requests to the NRC Staff. Moreover, the assumption is inconsistent with the fact that there is no required offsite emergency response for the PFS facility. Under the circumstances, it is inappropriate to assume that any radioactive release will be cleaned up after 30 days.

13. Second, and again apparently based on ISG-5, PFS assumes that the person receiving the dose is located at the fence line (500 m) for only 2,000 hours/year. The reason for this assumption is unclear. Perhaps PFS assumes that the person will not stay at the fenceline all year because someone will warn him or her away. Perhaps PFS assumes that the person is a worker. Again, the State has submitted discovery requests to PFS and intends to make similar discovery requests to the NRC Staff regarding this issue. In any event, either assumption would be unreasonable. The maximally exposed individual would be a resident near the fence post, because by definition, the Applicant has no control over an uncontrolled area. Anybody could go and live there. The question is not who is there now, but who might be there later. Moreover, in the absence of any offsite emergency response measures that would provide for a warning to the neighbor, it must be assumed that the neighbor remains there throughout the duration of the release.

14. In addition, while the new dose calculations consider the dose to the thyroid from iodine-129, they do not consider the thyroid dose from chlorine-36. It is common knowledge that chlorine-36 is also present in irradiated fuel, and yet it is not included in PFS's calculations.

15. Finally, PFS assumes, based on an unexplained assumption in ISG-5, that the deposited material is mixed with the top 1 cm of soil. The State has inquired regarding

the basis for the assumption in its discovery requests to PFS. This assumption is also unreasonable, because deposited material, in an arid region, may remain on the surface and therefore produce a stronger gamma dose.

UNITED STATES OF AMERICA  
BEFORE THE U.S. NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

PRIVATE FUEL STORAGE, L.L.C.  
(Independent Spent Fuel  
Storage Installation)

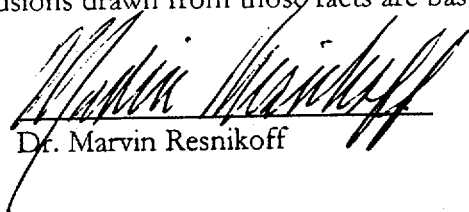
Docket No. 72-22-ISFSI

May 11, 1999

**DECLARATION OF DR. MARVIN RESNIKOFF IN SUPPORT OF  
STATE OF UTAH'S OPPOSITION TO APPLICANT'S MOTION  
FOR SUMMARY DISPOSITION OF CONTENTION C**

I, Dr. Marvin Resnikoff, declare under penalty of perjury that:

1. I am the Senior Associate at Radioactive Waste Management Associates, a private consulting firm based in New York City. On November 20, 1997 and January 16, 1998, I prepared declarations which were submitted to the Licensing Board by the State of Utah in support of its contentions regarding Private Fuel Storage, L.L.C.'s proposed Independent Fuel Storage Installation. A statement of my qualifications was attached to November 1997 declaration.
2. I am familiar with Private Fuel Storage's ("PFS's") license application and Safety Analysis Report in this proceeding, as well as the applications for the storage and transportation casks PFS plans to use. I am also familiar with NRC regulations, guidance documents, and environmental studies relating to the transportation, storage, and disposal of spent nuclear power plant fuel, and with NRC decommissioning requirements.
3. I assisted in the preparation of the State of Utah's Contention C, and am currently assisting the State in the preparation of its position on Contention C, including the taking of discovery. I assisted in the preparation of, and have reviewed, the State of Utah's Opposition to Applicant's Motion for Summary Disposition of Contention C (May 11, 1999). The technical facts regarding Contention C, which are presented in the State's Opposition and accompanying Statement of Material Facts in Dispute Regarding Contention C, are true and correct to the best of my knowledge, and the conclusions drawn from those facts are based on my best professional judgment.

  
Dr. Marvin Resnikoff

May 11, 1999