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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

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BEFORE THE COMMISSION

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

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In the Matter of:	)	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel	)	
Storage Installation)	)	March 2, 2001

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STATE OF UTAH'S BRIEF ON THE COMMISSION'S  
REVIEW OF APPLICANT'S SEISMIC EXEMPTION  
REQUEST AND ADMISSION OF AMENDMENT  
TO CONTENTION UTAH 1 (GEOTECHNICAL)

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NUCLEAR REGULATORY COMMISSION

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APPLICANT'S SEISMIC EXEMPTION REQUEST AND ADMISSION OF  
AMENDMENT TO CONTENTION UTAH L (GEOTECHNICAL)

In accordance with the Commission's February 14, 2001, Order, CLI-01-06, the State of Utah hereby submits its brief addressing LBP-01-03.<sup>1</sup> In that decision the Licensing Board determined that it did not have jurisdiction over the request by the Applicant, Private Fuel Storage, LLC ("PFS"), to be exempted from established seismic regulations, ruled that the State had posited litigable issues in challenging PFS's exemption request, and certified the matter to the Commission.<sup>2</sup> LBP-01-03, slip op. at 2.

The questions before the Commission are whether there should be an adjudicatory hearing before the Board or the Commission on PFS's exemption from the regulatory requirement to conduct a deterministic seismic hazard analysis, and instead allow PFS to conduct a probabilistic analysis based on a 2,000 year return period; and whether the Board's

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<sup>1</sup> Memorandum and Order (Rulings on Admissibility of Late-Filed Modification of Contention Utah L, Geotechnical, Basis 2; Referring Rulings and Certifying Question Regarding Admissibility) dated January 31, 2001.

<sup>2</sup> The Board took the logical and pragmatic approach of determining whether the State's issues would be admissible should the Board be given jurisdiction over the matter so as to avoid certifying any potentially non-litigable issues to the Commission. LBP-01-03, slip op. at 9.

ruling on the admissibility of Utah's request to amend Utah L (geotechnical), to encompass the issues raised by PFS's exemption request, forms a material dispute adequate to warrant further inquiry.

## **I. BACKGROUND**

### **A. Factual Background**

PFS proposes to build and operate the largest independent spent fuel storage installation ("ISFSI") in the United States on a very small Indian reservation located about 45 miles from Salt Lake City and the populous Wasatch Front. The storage site lies within the Intermountain Seismic Belt and is one of great geologic complexity. ER at 2.6-23, Rev. 5. A license, if granted, would allow storage at this away-from-reactor ISFSI of up to 4,000 casks of spent nuclear fuel rods. The cylindrical, 175 ton, dry storage casks are unanchored and would sit in the open on a concrete slab in a four by four array. See e.g. ER at 3.1-1, Rev. 11; SAR, Table 4.2-2, Rev. 12.

### **B. Procedural History**

Contention Utah L<sup>3</sup> and its bases are founded on 10 CFR Part 72, including the requirement to use a deterministic methodology for seismic and geologic siting criteria. Section 72.102(b) requires that for ISFSI sites "[w]est of the Rocky Mountain Front . . . seismicity will be evaluated by the techniques of appendix A of part 100 of this chapter." Appendix A requires a deterministic approach to determine the design basis for vibratory

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<sup>3</sup> Utah L asserts "[t]he Applicant has not demonstrated the suitability of the proposed ISFSI site because the License Application and SAR do not adequately address site and subsurface investigations necessary to determine geologic conditions, potential seismicity, ground motion, soil stability and foundation loading." State of Utah's Contentions (November 23, 1997) at 80.

ground motion, based on a site-specific investigation of the maximum vibratory ground motion which could affect a site. 10 CFR Part 100, App. A, V(a).

In 1997, the NRC amended Part 100 with a new section 100.23 to allow the option of using a probabilistic seismic-hazard methodology. In June, 1998 NRC issued a Rulemaking Plan, SECY-98-126,<sup>4</sup> the purpose of which is to make “a conforming change to 10 CFR 72.102 that will require new applicants for dry cask ISFSIs that are West of the Rocky Mountain Front ... to evaluate seismicity by the techniques of Part 100 as amended in 1997, specifically Part 100.23 (instead of 10 CFR 100 Appendix A).” SECY-98-126 at 2.

The Rulemaking Plan allows a probabilistic seismic hazard assessment (“PSHA”) and requires systems, structures, and components (“SSCs”) to be designed to withstand either a Frequency-Category-1 design basis ground motion (1,000 year recurrence interval) or a Frequency-Category-2 design basis ground motion (10,000 year recurrence interval); there are no intermediate categories between Categories 1 and 2. *Id.* at 5. PFS has classified the following SSCs as important to safety: the canister; the concrete storage cask; the transfer cask; the lifting devices; the cask storage pads; the canister transfer building; the canister transfer cranes; and the seismic support struts. SAR at 3.4-3 (Rev. 17) to -4 (Rev. 9).

On April 2, 1999, the Applicant requested an exemption from 10 CFR § 72.102 (f)(1) to allow it to conduct a probabilistic seismic hazard analysis (“PSHA”) instead of the required deterministic analysis. In the initial exemption request, the Applicant proposed a

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<sup>4</sup> “Rulemaking Plan: Geological and Seismological Characteristics for Siting and Design of Dry Cask Independent Spent Fuel Storage Installations, 10 CFR Part 72,” SECY-98-126 (“Rulemaking Plan”). In a June 24, 1998 memorandum to the Executive Director for Operations, the Commission advised it did not object to SECY-98-126.

standard of a 1,000-year return period earthquake for its probabilistic seismic hazard analysis. As a result of comments from the Staff, on August 24, 1999, PFS modified its exemption request to propose its PSHA be based on a 2,000 year return period earthquake. See LBP-01-03, slip op at 17-18.

In response to the Applicant's initial exemption request, on April 30, 1999, the State filed its 1<sup>st</sup> Request to Amend Utah L<sup>5</sup>, which the Board denied without prejudice. LBP-99-21, 49 NRC 431 (1999). In reliance on the Staff's finding in the initial Safety Evaluation Report<sup>6</sup> that a PSHA with a 2,000-year return period may be acceptable, the State filed its 2<sup>nd</sup> Request to Amend Utah L<sup>7</sup>, "to require either the use of a probabilistic methodology with a return period of 10,000 years or compliance with the deterministic analysis as currently required by 10 CFR § [72.102(f)(1)]." 2<sup>nd</sup> Request to Amend Utah L at 7. The Board, relying on the Staff's assertion that it had not yet determined to grant the exemption request, denied the State's request as not ripe for admission. LBP-00-15, 51 NRC 313, 318 (2000).

The Staff issued a favorable ruling on PFS's exemption request in its final Safety

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<sup>5</sup> Motion Requiring Applicant to Apply for Rule Waiver Under 10 CFR § 2.758(b) or in the Alternative Amendment to Utah Contention L (April 30, 1999).

<sup>6</sup> The Staff in its initial SER as re-issued January 4, 2000, recognized that Part 72 currently requires a deterministic analysis for sites west of the Rocky Mountain Front and that the Rulemaking Plan only allows a 1,000 year or 10,000 return period. SER at 2-43 to 44. The Staff made no further reference to the Rulemaking Plan and determined that a 2,000-year return value with the PSHA methodology can be acceptable. Id. at 2-44 to -45.

<sup>7</sup> State of Utah's Request for Admission of Late-filed Modification to Basis 2 of Utah Contention L (January 26, 2000).



Evaluation Report. In response, the State filed its 3<sup>rd</sup> Request to Amend Utah L,<sup>8</sup> in which the State sought to modify Basis 2 of Utah L to require either the use of a PSHA with a return period of 10,000 years, consistent with the NRC Rulemaking Plan, or compliance with the deterministic approach currently required by 10 CFR § 72.102(f)(1). 3<sup>rd</sup> Request to Amend Utah L at 5. In the alternative, if the use of a PSHA with a return period less than 10,000 years is allowed, the State sought to require use of a return period significantly greater than 2,000 years to avoid placing undue risk on public safety and the environment. Id. The Board ruled on the admissibility of the request and certified whether the State's Utah L challenge to PFS's seismic exemption request should be litigated in this proceeding. LBP-01-03, slip op at 22.

## II. STANDARD OF REVIEW

The Board conducted a review of the State's request to amend an admitted contention but did not rule on the merits of PFS's exemption request. The Board's finding on the admissibility of the State's challenge to PFS's exemption request is, in part, a factual determination, and thus, the Commission must give due deference to the Licensing Board as the primary fact-finder. Northern Indiana Public Service Co. (Bailly Generating Station, Nuclear 1), ALAB-303, 2 NRC 858, 867 (1975). Commission review of Board decisions on legal and policy matters is de novo. Sequoyah Fuels Corporation and General Atomics (Gore, Oklahoma Site Decontamination and Decommissioning Funding), CLI-97-13, 46 N.R.C. 195, 206 (1997).

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<sup>8</sup> State of Utah's Request for Admission of Late-filed Modification to Basis 2 of Contention Utah L (November 9, 2000).

### III. ARGUMENT

#### A. PFS's Contested Request for an Exemption from a Regulation Relating to the Licensability of the Proposed ISFSI Is Subject to an Adjudicatory Hearing.

To obtain an ISFSI license, the burden is on PFS to demonstrate that it can meet all the applicable requirements of Part 72. 10 CFR § 72.40. By law, PFS is required to adhere to the duly promulgated regulations applicable to any Part 72 applicant applying for a license to construct an ISFSI in an area west of the Rocky Mountain Front. 10 CFR § 72.102(b). Under Part 72, PFS is required to conduct a deterministic seismic hazard analysis and the design earthquake must be equivalent to the safe shutdown earthquake for a nuclear power plant. 10 CFR § 72.102(f)(1). The Staff has announced that PFS cannot meet the deterministic seismic qualifications standards in section 102(f)(1). See LBP-01-03, slip op at 21. In addition, the State, in the formal adjudicative proceeding before the Licensing Board below, is challenging PFS's ability to meet the Part 72 geotechnical requirements, including its failure to conduct a true deterministic seismic hazard analysis.

Under Section 554 of the Administrative Procedures Act, adjudications required by statute are to be determined on the record after opportunity for an agency hearing. 5 USC § 554(a). The agency's enabling statute, the Atomic Energy Act ("AEA"), determines whether an on-the-record hearing is required. Philadelphia Newspapers, Inc. v. NRC, 727 F.2d 1195, 1202, 1203 and n. 5 (D.C. Cir. 1984). Section 189a of the AEA provides, in relevant part:

In any proceeding under this chapter for the granting . . . of any license . . . and in any proceeding for the issuance or modification of rules and regulations dealing with the activities of licensees . . . the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding....

42 USC § 2239(a)(1). In analyzing the AEA to determine whether Congress intended to conduct on the record formal proceedings, the Commission decided that Congress' principal concern regarding the section 189a hearing provision was with reactor licensing and safety issues. Kerr-McGee Corp. (West Chicago Rare Earths Facility), CLI-82-2, 15 NRC 232, 247-48 (1982); *see also* Advanced Medical Systems, Inc. (One Factory Row Geneva, OH 44041), ALAB-929, 31 NRC 271, 284 (1990).

Recently the Commission denied a petitioner's request to commence a hearing on request by an existing nuclear power plant licensee to be exempted from certain safeguards regulations. Commonwealth Edison Co (Zion Nuclear Power Station, Units 1 and 2), CLI-00-05, 51 NRC 90 (2000), 2000 WL 343072 (NRC).<sup>9</sup> The Commission held that the "exemption is plainly a pure 'exemption' of the kind contemplated in our rule, and cannot be viewed as a license amendment or a rule modification." Id. at 2000 WL 343072 at \*4. The State does not believe that by this holding the Commission means to infer that any request labeled an "exemption" should be summarily dismissed from the hearing requirements of section 189a. If such were the case, the Commission could exempt an applicant from an entire body of licensing requirements. Could the Commission, for example, exempt PFS from all the regulations relating to seismic site investigations? Or from some but not all site investigations? Following such a principle could readily lead to decision making based on an inadequate record and arbitrary and capricious action.

In reviewing the history of § 189a, the Commission found that the statute specifies the circumstances in which hearings are to be held and that to be entitled to a hearing the

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<sup>9</sup> The Commission also found the petitioner lacked standing. Id.

petitioner's request for a hearing must be properly characterized as one of those circumstances. Id. The circumstances here are vastly different from those in Zion and invoke the hearing requirements of section 189a. First, the Applicant is not an existing licensee but is a new applicant applying to the NRC for the grant of a license to store spent nuclear fuel. Second, there is an on-going formal adjudicatory proceeding in which PFS must demonstrate that as a matter of law it is entitled to judgment on contested issues. Third, the entity requesting the hearing, the State of Utah, has already demonstrated that it has standing to intervene in the PFS licensing proceeding. Fourth, the State has an admitted contention, Utah L, which is still being adjudicated below and which challenges the adequacy of how PFS has addressed certain geotechnical regulations, including the requirement for a valid deterministic seismic hazard analysis.

At issue in the Applicant's exemption request is the standard and methodology that the Applicant employs in its seismic hazard analysis for establishing design ground motions. The issues raised in this proceeding by the State in Utah L are directly relevant to the exemption request because the way in which the Applicant conducts its seismic hazard analysis will determine whether the Applicant's design basis provides adequate safety for potential earthquake ground motions. Consequently, the standard and methodology to be used will have a direct effect on the outcome of Utah L. The section 189a hearing requirement is therefore invoked because a decision on the exemption request will affect the grant of a license to PFS. The State is also entitled to a hearing that bears on this material factor of the Board's licensing decision. Union of Concerned Scientists v. NRC, 735 F.2d 1437, 11433 (D.C. Cir 1984) ("once a licensing proceeding is begun, hearing must

encompass all material factors bearing on the licensing decision raised by the requester”), *cert. denied sub nom. Arkansas Power & Light Company v. Union of Concerned Scientists*, 469 U.S. 1132 (1985).

Furthermore, the Applicant’s inability to meet current regulatory standards and the grant of the exemption to allow a standard different from the current regulations or the Commission’s Rulemaking Plan involve a substantive policy change. Section 189(a) is again invoked because a decision on the exemption involves a change in a substantive rule dealing with licensee activities. *Citizens Awareness Network, Inc. v. NRC*, 59 F.3d 284, 292 (1st Cir. 1995) (the Commission cannot effect substantive interpretative policy changes without complying with the notice and hearing provisions of section 189(a)). *See also Union of Concerned Scientists v. NRC*, 711 F.2d 370, 380 (D.C. Cir. 1983).<sup>10</sup>

PFS’s is requesting an exemption pursuant to 10 CFR § 72.7, which states:

The Commission may, upon application by any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.

Under 10 CFR § 72.7, the Commission may determine to grant an exemption from its duly promulgated regulations. In this instance, PFS is requesting an exemption from 10 CFR § 72.102(f)(1), which in turn relies on 10 CFR Part 100, Appendix A, a regulation applicable to nuclear power plants. In the context of an exemption from Part 50 regulations, the Commission regarded an exemption request as “extraordinary” and a method that “should

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<sup>10</sup> For a further discussion of the State’s entitlement to a hearing, *see* State of Utah’s Reply to Applicant’s and NRC Staff’s Responses to Late-Filed Bases for Utah Contention L at 11-14 (February 22, 2000).

be used sparingly.” Washington Public Power Supply System (WPPSS Nuclear Project Nos. 3 and 5), CLI-77-11, 5 NRC 719, 723 (1977). The Licensing Board in this proceeding repeated this concern, noting, “rules promulgated by the Commission reflect a considered judgment about the requirements necessary to protect the public health and safety and the environment” and an exemption from those duly adopted rules is atypical and never a matter that can be treated as wholly routine. LBP-99-21, 49 NRC 431, 437 and n. 4.

Requests for exemptions are unusual and, unlike some other exemption requests such as for commencement of site work prior to obtaining a construction license,<sup>11</sup> resolution of PFS’s seismic exemption request will directly affect PFS’s demonstration of the licensability of the proposed ISFSI. A merits determination on the request will involve policy and legal considerations but it will involve factual issues too. For example, and as discussed in the following section, neither PFS nor the Staff have developed a record to show the consequences of a denial of PFS’s exemption request. Nowhere is there any discussion of any physical or fiscal impediments to PFS meeting the current standard. Nor is there a record to show whether PFS can meet a design basis with a 10,000 year return period, or at least a return period greater than 2,000 years. Accordingly, the Commission may wish to consider remanding the factual issues back to the Board so that these issues can be heard along with the other issues the State has raised in its geotechnical contention, Utah L. Such a remand will not delay the licensing proceeding because hearings on Utah L are

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<sup>11</sup> *Sæ e.g., United States Dep’t of Energy Project Management Corp. Tennessee Valley Auth.* (Clinch River Breeder Reactor Plant), CLI-81-35, 14 NRC 1100, 1104 (1981). At the time of Clinch River, the Commission had only considered five exemption requests. *Id.* at n. 2.

not scheduled until November and December, 2001. *See* Revised Schedule attached to Board Order dated February 22, 2001.

If the Commission does not remand any of the issues back to the Board, the State requests an adjudicatory hearing before the Commission, where it may present expert witnesses and cross examine opposing party experts.

**B. An Adjudicatory Hearing Is Necessary Because the Applicant Has Not Demonstrated or Justified the Need for an Exemption from Existing Regulations.**

Exemptions from duly promulgated Commission regulations that reflect a considered judgment of what is required to protect public health, safety and the environment should be used sparingly. WPPSS, 5 NRC at 723. As the Commission considers exemption requests to be extraordinary, the Applicant should justify the need for an exemption from existing regulations. In this proceeding PFS is required to defend against the State's contention, Utah L. PFS should not be permitted to hide behind its exemption from the seismic regulations but should, in an adjudicatory hearing, be required to defend its need for an exemption. PFS has not documented or demonstrated why it cannot meet acceptable facility design values and comply with the current regulations or why it should be entitled to avoid those regulations. A brief overview of the actions that led to the exemption request bears this out.

Structures, systems and components important to safety must be designed to withstand the effects of earthquakes and other natural phenomena without impairing their capability to perform safety functions. 10 CFR § 72.122(b)(2). The design earthquake for use in the design of structures for a facility like that proposed by PFS must be determined

using the same standards as those applicable to a nuclear power plant under 10 CFR Part 100, Appendix A. See 10 CFR § 72.102(f)(1). The Part 100 standard for calculating a safe shutdown or design-basis earthquake uses a deterministic seismic hazard analysis and must take into account the potential effects of vibratory ground motion caused by earthquakes. 10 CFR Part 100, Appendix A, § V(a).

When PFS submitted its original license application in 1997, its seismic hazard assessment and its deterministic seismic hazard analysis (“DSHA”) were preliminary. PFS submitted a more detailed seismic hazard assessment and a revised DSHA to NRC in 1999. In both the original 1997 DSHA and the 1999 updated DSHA of vibratory ground motion hazard, PFS incorporated probabilistic approaches for maximum magnitude, minimum source-to-site distance, and attenuation relationships in estimating the 84th percentile ground motion levels. See e.g., 1<sup>st</sup> Request to Amend Utah L at 4-5. The State has referred to this approach as a “hybrid DSHA.”

The structural seismic design criteria in PFS’s original application were based on a maximum peak ground acceleration of 0.67g in the horizontal direction and 0.69g in the vertical direction. SAR at Table 3.6-1 (Sheet 2 of 5), Rev. 0. When updating its site investigation, PFS discovered two formerly unknown capable faults that lie approximately 0.9 km and 2 km from the site. ER at 2.6-2, Rev 4.<sup>12</sup> Taking the newly discovered faults into account, PFS updated its hybrid DSHA and estimated the peak ground acceleration to

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<sup>12</sup> Also, a known capable fault, the Stansbury fault, lies approximately nine km to the east and is projected beneath the site. In addition, there are other seismogenic faults in the Skull Valley region. See e.g., Utah Response to Summary Disposition, Utah L, dated January 30, 2001, at 4-5 and citations therein.



be 0.72 g in the horizontal direction and 0.80g in the vertical direction. *Sæ eg*, FSER at 2-33.

The Staff in the final SER merely states that the new vibratory ground motions “exceed the SAR proposed design values.” *Id.* The Staff then notes, at FSER p. 2-34:

To resolve the issue of seismic design, the applicant submitted to the NRC, a request for an exemption to the seismic design requirement of 10 CFR 72.102(f)(1) to use PSHA along with considerations of risk to establish the design earthquake ground motion levels at the Facility.

PFS in its seismic exemption request to the Staff has not documented or demonstrated why it cannot meet acceptable facility design values and comply with the current regulations. There is no record of whether there are any physical limitations to designing a facility that is capable of meeting the updated peak ground accelerations or whether such a design is more costly than PFS is willing to bear. It is, therefore, necessary to have a hearing to flush out the justification for such an extraordinary method of complying with existing regulatory standards.

**C. An Adjudicatory Hearing Is Needed Because PFS’s Seismic Hazard Analysis Would Be Based on Standards That Are Ad Hoc, Arbitrary and Capricious and Not Protective of Public Health and Safety.**

A decision-maker cannot reasonably consider this matter in the absence of an adequate record. Here, the record to support granting PFS’s exemption is woefully deficient. The Applicant has not documented or demonstrated an acceptable or logical basis for the exemption standards PFS may use in its seismic hazard analysis. The Staff’s analysis also fails to give an acceptable or logical basis for its approval. Thus, important questions will not be tested unless there is an adversarial process to present all legal, technical and policy sides of the issue. An adjudicatory hearing will allow the State to present testimony

from its experts to give the Board or the Commission another perspective on the Applicant's seismic hazard analysis. The issues underlying PFS's exemption request are technically complex and the adjudicator would benefit from hearing testimony from the State's experts, such as seismologist Dr. Walter J. Arabasz. A recognized expert in the field of earthquake hazard evaluation, Dr. Arabasz has extensive experience in probabilistic seismic hazard analysis, with a primary focus on Utah and the Intermountain West.<sup>13</sup>

PFS's stated reason for requesting its exemption was to allow it to use a probabilistic methodology consistent with the methodology used for existing nuclear power plants and preclosure facilities at Yucca Mountain. Exemption Request at 1, 7.<sup>14</sup> PFS also anticipated that the Commission's Part 72 Rulemaking Plan to permit use of PSHA methodology would not likely be completed before issuance of a license to PFS. *Id.* at 1. PFS, citing an exemption granted to the storage of TMI-2 spent fuel at the Idaho National Engineering and Environmental Laboratory ("INEEL") and the radiological risk at the PFS facility,

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<sup>13</sup>Since 1977 Dr. Arabasz has routinely provided professional consulting services on earthquake hazard evaluations for dams, nuclear facilities, and other critical structures. During the past decade he has had major involvement in assessing vibratory and fault-displacement hazards for the high-level nuclear waste repository at Yucca Mountain, including peer review, review of technical reports, and serving on expert teams for seismic source characterization for probabilistic hazard analyses. His service over the past two decades on national and state advisory boards and panels has included his serving on the National Research Council's Panel on Seismic Hazard Evaluation, the Utah Seismic Safety Commission, and numerous NEHRP panels and work groups and is directly relevant to issues in PFS's exemption request. *See* Dr. Arabasz's curriculum vitae, attached to 2<sup>nd</sup> Request to Amend Utah L (Exhibit 1).

<sup>14</sup> The PFS exemption request is attached as Exhibit A to the State's 1<sup>st</sup> Request to Amend Utah L.

considered there was adequate safety for a 1,000 year return PSHA. Id. at 4-5.<sup>15</sup> In response to the Staff's comment to PFS that it should consider using a design earthquake based on a PSHA with a return frequency of 2000 years or, alternatively, submit additional regulatory and technical basis to justify use of a 1,000 year-return period, PFS informed the Staff it would use a 2,000 year-return period in its PSHA. *Sæ* PFS License Application, App. C, Commitment Resolution Letter # 14, dated August 6, 1999.

The Staff, in the initial SER (as revised and re-issued on January 4, 2000) presented four justifications for finding a PSHA methodology with a 2,000-year return value could be used by PFS. SER to 2-44 to -45. First, the Staff relied on the DOE standard for DOE performance Category-3 facilities; use of that standard is violative of the Commission's Rulemaking Plan because the Plan categorically did not adopt the various DOE facility performances categories. Second, the Staff relied on building-code documents and standards all of which were outdated and superseded by more stringent requirements. Third, the Staff relied on an exemption granted to DOE's TMI-2 ISFSI at INEEL to use a PSHA with a 2,000 year return period and in which the design seismic value fortuitously enveloped the 50th percentile deterministic ground motion value. The Staff opined that PFS's 2,000-year PSHA response spectra generally envelopes the 50th-percentile updated DSHA, but the premise underlying the Staff's statement is wrong because such a comparison can only be made to a valid DSHA; PFS has not conducted a valid DSHA. The Staff's fourth justification is circular because it relies on PFS's technical report, which in turn relies on the

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<sup>15</sup> *Sæ* 1<sup>st</sup> Request to Amend Utah L (dated April 30, 1999) wherein the State raised substantive concerns relating to PFS's April 2, 1999 Exemption Request.

Staff's indirect guidance regarding the appropriate probability level for seismic design.<sup>16</sup>

In the FSER, the Staff again ignored the Commission's Rulemaking Plan. In addition to the standards applicable to DOE performance Category-3 facilities and the exemption granted to DOE's TMI-2 ISFSI, in the FSER the Staff incorrectly concluded that the mean annual probability of exceedance for the PFS facility may be less than  $10^{-4}$  per year.<sup>17</sup> FSER at 2-42. The Staff used the flawed premise that the reference probability for seismic design of commercial nuclear power plants, defined in terms of a median annual probability of  $10^{-5}$ , corresponds to the same ground motion levels as the mean annual probability of exceedance of  $10^{-4}$ . The Staff's reasoning is critically flawed because, while the relationship between median and mean exceedance probabilities may be true for Central and Eastern United States (CEUS) sites, it is definitely invalid for sites in the Western United States (WUS).<sup>18</sup> See 3<sup>rd</sup> Request to Amend Utah L at 8-11, and references cited therein.

As is evident from the above, because the development of standards for the PFS site have been cobbled together without public scrutiny and in a non-adversarial setting, they lack credibility. The State believes these defects will be resolved in an adjudicatory hearing.

**D. The Reasons for Granting the Exemption Are Ad Hoc, Arbitrary, Capricious and Non-conservative and Give Rise to Issues of Law and Fact that Form the**

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<sup>16</sup> See 2<sup>nd</sup> Request to Amend Utah L at 12-19 for a critical discussion of the technical and logical flaws in the Staff's justification that PFS may use a PSHA with a return period of 2,000 years, and the references cited therein.

<sup>17</sup> In the FSER, the Staff presumably meant to say that a 2,000 year return period is greater than  $10^{-4}$ .

<sup>18</sup> For example, if a nuclear power plant were to be sited at the proposed PFS site, the design ground motions would have to correspond to a median annual probability of exceedance of  $10^{-5}$ .

### **Basis of an Admissible Contention.**

The Board analyzed seven items in the State's challenge to PFS's exemption request and found all items admissible except items 2(b), 3, and 6(b). LBP-01-03, slip op at 9-22.

The State's challenge to the exemption request can be categorized into four general areas: (1) non-conformance with the Commission's Rulemaking Plan; (2) adequacy of protection against exceeding dose limits; (3) lack of a technical basis to adequately establish the standard; and (4) setting a non-conservative standard.

By relying on SECY-98-126, the State properly framed a challenge to the rationale for the use of a 2,000-year return period because the Staff cannot simply ignore the directives from the Commission.<sup>19</sup> 10 CFR § 1.11. The Staff gave no explanation why its exemption decision does not conform to SECY-98-126.

The Board found admissible the State's claim that PFS has failed to show its facility design will provide adequate protection against exceeding section 72.104(a) dose limits. But the Board found two safety-related issues inadmissible. The Board found the State's challenge to PFS's accident analysis that may result in exceedance of dose limits was untimely. The State submits it was not untimely in raising PFS's accident analysis because there is no longer the degree of conservatism in the design of the PFS facility that there would be if PFS had to design the facility to deterministic standards or probabilistic standards with a 10,000 year return period.

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<sup>19</sup> The Board found that the existence of the Plan "creates the reasonable expectation that, as part of the rationale provided in support of the exemption, an explanation will be provided about why the scheme, as set forth in the plan, is not appropriate relative to the exemption. That explanation is, in turn, subject to scrutiny in a properly pled contention." LBP-01-03, slip op. at 15.

Second, the Board found the State failed to challenge the application with respect to certain Category 1 SSCs even though that issue was tied to the exemption request. LBP-01-03, slip op. at 12. For not admitting this portion of the State's challenge, the Board relies on the fact that since the State began challenging PFS's exemption request, PFS has since amended its application; the amendments provide a design for certain Category 1 SSCs to withstand a design basis ground motion based on a PSHA with a 2,000-year return period as the basis. LBP-01-03 at 16. Notwithstanding PFS's license amendments, only now when the Board found the State's challenge to the exemption was ripe were there any applicable design basis standards under the exemption request that the State could challenge. Furthermore, to require the State to parse the exemption request into what is and is not ripe for Board review is unreasonable.

There are a number of reasons the State should now be permitted to form an admissible exemption challenge to the design basis for the PFS facility using ground motions developed from a PSHA with a 2,000 year return period (hereafter "2000 year PSHA ground motions"). First, PFS is currently re-analyzing the development of its design basis ground motion. Second, part of PFS's rationale for the exemption is based on the Holtec cask sliding and tipover analysis, which uses 2,000 year PSHA ground motions. Third, many other analyses, such as the stability analyses for the Canister Transfer Building and storage pads, foundation loading, and soil stability, use 2,000 year PSHA ground motions as inputs into the calculations.

A critical part of the Board's decision relates to the validity of a Staff-review based contention. LBP-01-03 at 16 One central focus of the State's challenge to PFS's exemption

is that there is no compelling basis or justification for choosing the 2,000 year return period. Citing the general proposition that contentions must focus on the adequacy of the application, not the adequacy of the Staff's review, the Board found this held true but only so long as the appropriate justification for the applicant's request is in its licensing submission. LBP-01-03 at 16-17. Here, PFS has not justified its request. See Sections B and C above. The Staff found inadequate PFS's regulatory and technical basis for its 1,000 year return period request. The only reason on record for PFS's change in its exemption request from a 1,000 year to a 2,000 year return period is the Staff's suggestion that PFS should consider using a 2,000 year return period. LA, App C, Commitment Resolution Letter # 14 (August 6, 1999). See also LBP-01-03 at 17-18. Other than PFS stating the obvious – that a 2,000 year return period will provide additional conservatism than a 1,000 year return period – the Staff's enumerated reasons for adopting a 2,000-year return period are the sole record support to justify the standard. As described in Section C above, the Staff's justifications are ad hoc, arbitrary and capricious. The Commission should not allow an illogical and flawed record to stand in support of PFS's exemption request. By admitting the State's challenge to the Staff's justification, a more complete record will be developed to support whatever standard the Commission finds appropriate. Furthermore, allowing a Staff-review based contention should not open the Staff up to such challenges in the future because exemptions are atypical and exemptions should be properly justified by an applicant.

Finally, the standard granted under PFS's exemption request does not ensure an adequate level of conservatism for the seismic design of the PFS facility and is not in the public interest. A consistent theme in PFS's exemption request is that grants of past

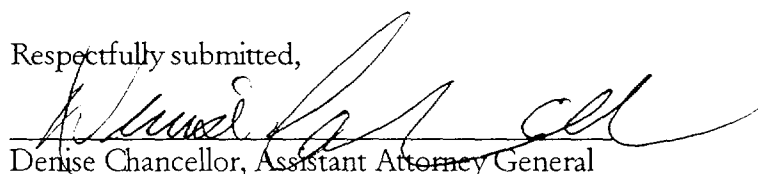
exemptions establish precedent. However, a site specific exemption request which has been granted in the past, such as at INEEL, should not create the standards which all future Part 72 applicants should be permitted to follow. Existing rules reflect the Commission's considered judgment of the requirements necessary to protect public health and safety. Furthermore, to grant PFS the requested exemption, the Commission must find that it is in the public interest. 10 CR § 72.7. It will be unconvincing to the public that the design ground motion level for a nuclear waste storage facility is adequately conservative when design levels for new building construction and new highway bridges in Utah are more stringent. See 3<sup>rd</sup> Request to Amend Utah L at 12-14.<sup>20</sup> Whether the standard provides adequate conservatism forms a material dispute adequate to warrant further inquiry.

## CONCLUSION

For the foregoing reasons, the State urges the Commission or Board to hold an adjudicatory hearing on PFS's exemption request and that the Commission find admissible the State's challenge to PFS's exemption request.

DATED this 2<sup>nd</sup> day of March, 2001.

Respectfully submitted,



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<sup>20</sup> New interstate highway bridges in Utah correspond to a return period 2,400 years and the more stringent new building construction codes go into effect in Utah at the beginning of January 2002. *Id.* at 12. In another aspect of this proceeding, PFS argues that the appropriate design basis risk standard of an aircraft crash is  $10^{-6}$ . See Applicant's Motion for Summary Disposition of Utah Contention K and Confederated Tribes Contention B at 9-10.



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CERTIFICATE OF SERVICE

I hereby certify that a copy of STATE OF UTAH'S BRIEF ON THE  
COMMISSION'S REVIEW OF APPLICANT'S SEISMIC EXEMPTION REQUEST  
AND ADMISSION OF AMENDMENT TO CONTENTION UTAH I

(GEOTECHNICAL) was served on the persons listed below by electronic mail (unless  
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