

2

May 31, 2000

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
	)	
(Independent Spent	)	
Fuel Storage Installation)	)	

NRC STAFF'S (CORRECTED) MOTION IN LIMINE TO EXCLUDE  
CERTAIN EXHIBITS FILED BY THE STATE OF UTAH

INTRODUCTION

Pursuant to 10 C.F.R. §§ 2.730 and 2.743 (c), and the Atomic Safety and Licensing Board's "Memorandum and Order (Granting Joint Motion to Approve Stipulation on Contention Utah S and Outlining Administrative Matters)," dated May 1, 2000, NRC Staff ("Staff") hereby requests that the Licensing Board issue an Order, *in limine*, excluding from the evidentiary record of this proceeding ten exhibits (Utah Exhibits 7, 9, 10, 11, 12, 13, 30, 31, 32, and 53) that have been proposed for admission by the State of Utah ("State"). Further, the Staff opposes the admission of three other exhibits in their current form (Utah Exhibits 1, 14, and 35), but would not oppose the admission of those exhibits upon the State's insertion of correct pages in lieu of certain superseded pages that appear therein. The reasons in support of this Motion are set forth in the discussion below.

A. Exhibits to Be Excluded

Utah Exhibit 7

Utah Exhibit 7 consists of certain rules promulgated by the Occupational Safety and Health Administration, published at 29 C.F.R. § 1910.156 ("Fire brigades"). Inasmuch as this proposed exhibit consists of Federal regulations, there is no reason why it should be

SECY-042

included in the record as evidentiary material. Further, the subject of PFS' compliance with OSHA standards is beyond the proper scope of Contention Utah R, and is beyond the scope of the Commission's jurisdiction; accordingly, this proposed exhibit should also be excluded as irrelevant.

Utah Exhibit 9

Utah Exhibit 9, similar to Utah Exhibit 7, consists of rules promulgated by the Occupational Safety and Health Administration, published at 29 C.F.R. § 1910.134 ("Respiratory protection"). Inasmuch as this proposed exhibit consists of Federal regulations, there is no reason why it should be included in the record as evidentiary material. Further, the subject of PFS' compliance with OSHA standards is beyond the proper scope of Contention Utah R, and is beyond the scope of the Commission's jurisdiction; accordingly, this proposed exhibit should also be excluded as irrelevant.

Utah Exhibit 10

Utah Exhibit 10 consists of NFPA 1500 ("Standard on Fire Department Occupational Safety and Health Program"), Chapter 1 and Appendix A. This NFPA document is beyond the scope of any issues admitted as part of Contention Utah R, in that the State never identified this standard in its contention. *See, e.g., Public Service Co. of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-899, 28 NRC 93, 97 (1988)* (the scope of a contention is limited to its terms and its stated basis). Moreover, this document, on its face, is irrelevant to the licensing of the PFS facility, in that the document explicitly states that "[t]his standard does not apply to industrial fire brigades or industrial fire departments meeting the requirements of NFPA 600, *Standard on Industrial Fire Brigades.*" *Id.*, at § 1-1.3. Accordingly, the Staff opposes its admission into evidence in this proceeding.

Utah Exhibit 11

Utah Exhibit 11 consists of a copy of Chapter 4 ("Thermal Evaluation") of the Staff's Safety Evaluation Report ("SER") for the HI-STORM 100 Cask System. Chapter 4 of the HI-STORM SER has also been proposed for admission by the Staff, without opposition by PFS or the State, as part of Staff Exhibit B. There is no reason why the same document should be admitted twice; indeed, the State's proposal to do so would violate the rule in 10 C.F.R. § 2.743(c) prohibiting the admission of evidence that is unduly repetitious. Further, the version of this document proffered by the State does not exactly correspond with the actual document, at least with respect to format (*compare, e.g.,* Staff Exh. B at 1 *with* Utah Exh. 11, at 1; and Staff Exh. B at 3 *with* Utah Exh. 11 at 3 (line numbering). Accordingly, this exhibit should be excluded.

Utah Exhibit 12

Utah Exhibit 12 consists of Chapter 4 ("Thermal Evaluation") of NUREG-1536, "Standard Review Plan for Dry Cask Storage Systems" (Final Report, January 1997). The admission of this document is not necessary to a proper decision in the proceeding. As an NRC regulatory guidance document, the Licensing Board may take official notice of this chapter of NUREG-1536 in accordance with 10 C.F.R. § 2.743(i), and the document may be cited by the parties without its having been admitted as an exhibit in the proceeding. *See, e.g., Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), CLI-93-03, 37 NRC 135, 147 n.30 (1993) ("The Commission can take official notice of 'a matter beyond reasonable controversy' and one that is 'capable of immediate and accurate determination by resort to easily accessible sources of indisputable accuracy' (citations omitted)).

Indeed, official notice has been taken of regulatory guidance documents in other NRC proceedings. See, e.g., *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-87-10, 25 NRC 177, 192 n.11 (1987) ("The Board takes official notice of pertinent Commission's NUREGs and Regulatory Guides"); *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), LBP-84-37, 20 NRC 933, 939 n.2, and 971 (1984) (Licensing Board took official notice of NUREG-0654 ("Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Rev. 1, Nov. 1980)), and FEMA-43 ("Standard Guide for Evaluation of Alert and Notification Systems for Nuclear Power Plants" (Sept. 1983)); *Kansas Gas & Electric Co.* (Wolf Creek Generating Station, Unit No. 1), LBP-84-26, 20 NRC 53, 60 (1984) (Licensing Board took official notice of NUREG-0654/FEMA-REP-1).<sup>1</sup> The Staff believes this course of action is appropriate here, to avoid freighting the record with unnecessary evidentiary exhibits -- as long as any potential use of the document is identified on the record of the proceeding.<sup>2</sup>

---

<sup>1</sup> Nonetheless, the Staff recognizes that regulatory guides have been admitted as evidence in some proceedings. See, e.g., *Louisiana Energy Services, L.P.* (Claiborne Enrichment Center), LBP-96-7, 43 NRC 142 (1996) (Regulatory Guide 3.67); *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681 (1985) (Regulatory Guide 1.91); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-653 (1981) (Regulatory Guide 5.20); *Boston Edison Co.* (Pilgrim Nuclear Power Station, Unit 2), LBP-81-3, 13 NRC 103 (1981) (WASH-1238 and NUREG-75/038); *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341 (1978) (Regulatory Guide 1.109).

<sup>2</sup> The extent to which an exhibit may be relied upon in a party's proposed findings of fact and conclusions of law may be limited by a ruling on the purpose for its admission into evidence, which averts unfair surprise to other parties. Cf. Federal Rules of Evidence, Rule 105 ("Limited Admissibility"); *Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 476 (1982); *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-781, 20 NRC 819, 831 n.43 (1984). This principle applies as well to documents of which official notice is taken, pursuant to 10 C.F.R. § 2.743(i)(1). This regulation states as follows:

(continued...)

Utah Exhibit 13

Utah Exhibit 13 consists of an early version of Interim Staff Guidance 11 ("ISG-11"), entitled "Storage of High Burnup Spent Fuel." This document was recently superseded by Revision 1 to ISG-11, on May 16, 2000; a copy of ISG-1, Revision 1, is attached hereto. While this document constitutes an interim guidance document, the Staff submits that the Licensing Board may take official notice of it, and that it need not be admitted as an exhibit in the proceeding, for the reasons set forth with respect to State Exhibit 12; in any event, however, if ISG-11 is admitted as an exhibit in the record, the current version (Rev. 1) should be inserted in place of proposed State Exhibit 13.

Utah Exhibit 30

Utah Exhibit 30 consists of several pages reprinted from the Licensing Board's decision in LBP-98-7, 47 NRC 142, 251-52 (1998), in which the Board admitted certain contentions for litigation in this proceeding. The Licensing Board's decision, however, is readily available for citation by the Board and parties as a legal document. No reason exists why this material should also be admitted as an evidentiary exhibit in the record. Accordingly, the Staff opposes the admission of this proposed exhibit.

Utah Exhibits 31 and 32

Utah Exhibits 31 and 32 appears to consist of an electronic ("WestLaw") version of NRC regulations published in 10 C.F.R. § 72.22 (Utah Exhibit 31) and 10 C.F.R. § 72.40 (Utah Exhibit 32). These regulations do not constitute "evidence" and are inappropriate for inclusion in the evidentiary record. Moreover, no reason appears why the Commission's

---

<sup>2</sup>(...continued)

Each fact officially noticed . . . shall be specified in the record with sufficient particularity to advise the parties of the matters which have been noticed or brought to the attention of the parties before final decision and each party adversely affected by the decision shall be given opportunity to controvert the fact.

regulations should be admitted as evidentiary exhibits in the proceeding, inasmuch as they are available for citation by the Licensing Board and parties as legal materials. Accordingly, the Staff opposes the introduction of these exhibits.<sup>3</sup>

#### Utah Exhibit 53

Utah Exhibit 53 appears to consist of a letter from an NRC attorney (C. William Reamer) to Christopher J. Wentz, Coordinator of the Radioactive Waste Consultation Task Force, New Mexico Energy, Minerals, and Natural Resources Department, dated June 29, 1995. In this letter, the Office of the General Counsel ("OGC") provided its views concerning the applicability of the Price Anderson Act to spent fuel shipments to the Mescalero storage facility. However, the letter explicitly states that it contains OGC's "informal views" concerning the specific questions raised therein, "and does not constitute anything of the nature of "formal, written interpretations of the regulations which are recognized as binding on the Commission." Thus, it is clear that this letter does not constitute a binding interpretation of the statute. Further, the letter provides the writer's legal interpretation of the Price Anderson Act rather than any form of evidentiary (factual) material; nor has a proper witness been identified who could sponsor the exhibit. Accordingly, the document lacks any factual or legal significance in this proceeding, and should be excluded as irrelevant pursuant to 10 C.F.R. § 2.743(c).

---

<sup>3</sup> In contrast, the Staff does not oppose the admission of Utah Exhibit 51, which consists of sections 19-3-301 - 19-3-318 of the Utah Radiation Control Act (pertaining to the placement of high level nuclear waste in the State). To be sure, this proposed exhibit consists of statutory material, and is readily available for citation by the Board and parties; however, at least one Licensing Board has stated that "official notice of state law is not a good concept in a federal proceeding." *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), LBP-89-32, 30 NRC 375, 525 (1989); cf. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), LBP-88-13, 27 NRC 509, 565-66 (1988) (declining to take official notice of three Town Resolutions, cited in a party's proposed findings, since that would preclude other parties from confronting the issues -- notwithstanding the Board's recognition that it was "authorized to take official notice of facts such as certified acts of government bodies").

B. Exhibits to Be Corrected

Utah Exhibit 1

Utah Exhibit 1 consists of a copy of Chapter 4 of the PFS Emergency Plan ("EP"). The last page of this exhibit sets out an organizational chart for the "Functional PFSF Organization." This page, however, has been superseded by the Applicant's submittal of EP Revision 7, on May 8, 2000, which deletes certain specific information concerning the security organization. The Staff would not oppose the introduction of this exhibit, subject to the State's insertion of the correct page in lieu of this superseded page.

Utah Exhibit 14

Utah Exhibit 14 consists of section 4.1.5.2 ("Thermal Design") of the PFS Safety Analysis Report ("SAR"), along with the first page of the accompanying reference section. While most of this proposed exhibit reflects the latest version of the PFS SAR document, certain pages have been superseded by later versions of the SAR (pages 4.2-14, 4.2-16, and 4.2-16b). The Staff would not oppose the proffer of this section of the SAR as an exhibit, subject to the State's insertion of the correct pages in lieu of these superseded pages.

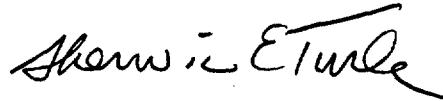
Utah Exhibit 35

Utah Exhibit 35 consists of portions of the Applicant's Environmental Report ("ER"), *i.e.*, section 3.2 ("Facility Construction") and Appendix 7A ("Basis for the Use of a 3.8% Discount Rate"). While most of this proposed exhibit reflects the latest version of the PFS ER, certain pages have been superseded by later versions of the ER (pages 3.2-6 and 3.2-7). The Staff would not oppose the proffer of this exhibit, subject to the State's insertion of the correct pages in lieu of these superseded pages.

CONCLUSION

For the reasons set forth above, the Staff submits that the instant Motion in Limine should be granted, and the proposed exhibits excluded or modified in the manner set forth herein.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Sherwin E. Turk". The signature is written in a cursive style with a prominent flourish at the end.

Sherwin E. Turk  
Counsel for NRC Staff

Dated at Rockville, Maryland  
this 31<sup>st</sup> day of May 2000

May 16, 2000

MEMORANDUM TO: SFPO Staff Members

FROM: E. William Brach, Director /RA/ original signed by  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: ISSUANCE OF REVISION 1 OF SFPO DIRECTOR'S INTERIM  
STAFF GUIDANCE DOCUMENT 11

Attached for your use and information is Revision 1 of the Spent Fuel Project Office (SFPO) Director's Interim Staff Guidance Document 11 (ISG-11). This revised interim staff guidance concerns the issue of "Transportation and Storage of Spent Fuel Having Burnups in Excess of 45 GWd/MTU."

This document is being provided to ensure consistent reviews by the SFPO staff. If you have any comments or questions about the attached guidance document, please contact your immediate supervisor.

Attachment: As stated

CONTACT: Kim Gruss, SFPO/NMSS  
301-415-8586

Earl P. Easton, SFPO/NMSS  
301-415-8520

DISTRIBUTION:

NRC File Center	PUBLIC	SFPO r/f	NMSS r/f
CSchum, OEDO	MSatorius, OEDO	SGagner, OPA	STurk, OGC
CBrown, SFPO	KLathrop, SFPO		

G:\DO\ISGs\lsg-11r1.wpd \*See previous concurrence.

ML003715610

OFC:	SFPO	E	SFPO	E	SFPO	E	SFPO	E	SFPO	E	SFPO	E			
NAME:	KGruss*		GTharpe*		EEaston*		Kajko		Lyons		Hodges		Shankman		Brach
DATE:	5/12/00		5/12/00		5/12/00		5/15/00		5/15/00		5/15/00		5/15/00		5/16/00

OFFICIAL RECORD COPY



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

May 16, 2000

MEMORANDUM TO: SFPO Staff Members

FROM: *E. William Brach*  
E. William Brach, Director  
Spent Fuel Project Office  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: ISSUANCE OF REVISION 1 OF SFPO DIRECTOR'S INTERIM  
STAFF GUIDANCE DOCUMENT 11

Attached for your use and information is Revision 1 of the Spent Fuel Project Office (SFPO) Director's Interim Staff Guidance Document 11 (ISG-11). This revised interim staff guidance concerns the issue of "Transportation and Storage of Spent Fuel Having Burnups in Excess of 45 GWd/MTU."

This document is being provided to ensure consistent reviews by the SFPO staff. If you have any comments or questions about the attached guidance document, please contact your immediate supervisor.

Attachment: As stated

CONTACT: Kim Gruss, SFPO/NMSS  
301-415-8586

Earl P. Easton, SFPO/NMSS  
301-415-8520

**Spent Fuel Project Office  
Interim Staff Guidance - 11, Revision 1**

---

**Issue:      **Transportation and Storage of Spent Fuel Having Burnups In Excess of  
45 GWd/MTU****

The Standard Review Plans (SRPs) for transportation and storage of spent nuclear fuel (i.e., NUREG-1536, NUREG-1617, and NUREG-1567) do not address fuel having burnups in excess of 45 GWd/MTU. For spent fuel having average assembly burnups less than 45 GWd/MTU, there is sufficient experimental data to support the long-term and short-term temperature limits that are specified in the SRPs. Thus, the staff has reasonable assurance that spent fuels with average assembly burnups up to 45 GWd/MTU can be transported and stored safely.

The staff has recently evaluated the technical basis for the transportation and storage of spent fuel assemblies with average assembly burnups exceeding 45 GWd/MTU. This Interim Staff Guidance (ISG) addresses the technical review aspects associated with cladding integrity and specifies the acceptance criteria for the transportation and storage of these higher burnup fuels.

**Regulatory Basis**

In accordance with 10 CFR Part 71, the geometric form of the contents in a spent fuel package should not become substantially altered under the conditions specified for normal and hypothetical accident conditions of transport as analyzed and specified in the Safety Analysis Report (SAR). Under normal conditions of transport, the licensee must assure there would be no loss or dispersal of spent fuel, no significant increase in external surface radiation levels, and no substantial reduction in the effectiveness of the spent fuel package as required by 10 CFR 71.43(f). Similarly, under hypothetical accident conditions, the licensee must assure that any cladding damage would not result in exceeding the criticality requirements of 10 CFR 71.55(e) and the shielding and containment requirements of 10 CFR 71.51.

In accordance with 10 CFR 72.122 (h)(1), the spent fuel cladding must be protected during storage from degradation that leads to gross ruptures, or the fuel must otherwise be confined so that degradation of the cladding will not impose operational safety problems. Furthermore, 10 CFR 72.122(l) requires that the storage system be designed to allow ready retrieval of the spent fuel from the storage system.

**Technical Review Guidance**

The staff, with assistance from Pacific Northwest National Laboratory (PNNL), has recently evaluated the potential impact of storage conditions on the cladding integrity of fuels with average assembly burnups exceeding 45 GWD/MTU [Ref. 3].

The staff believes that Zircaloy cladding can withstand uniform creep strains (i.e., creep prior to tertiary or accelerating creep strain rates) of about 1% before the cladding can become perforated if the average hydrogen concentration in the cladding is less than about 400 to 500 parts per million (ppm). This amount of hydrogen corresponds to an oxide thickness of approximately 70-80 micrometers using the recommended hydrogen pickup fraction of 0.15 from Lanning, et al., [Ref. 4] and Garde [Ref. 2]. The staff also believes that the strength and

ductility of irradiated Zircaloy do not appear to be significantly affected by corrosion-induced hydrides at hydrogen concentration levels up to approximately 400 ppm. Additionally, one of the creep mechanisms of the Commercial Spent Fuel Management (CSFM) methodology for calculating cladding temperature limits [Ref. 1 and Ref. 5] namely, grain boundary sliding, provides a theoretical basis to expect cladding to accommodate uniform creep strains of about 1% without perforation for cladding with hydrogen levels in the 400-500 ppm range. Therefore, the staff has reasonable assurance that fuels having average assembly burnups exceeding 45 GWd/MTU can be safely stored and transported if the following acceptance criteria are met:

- I. A high burnup fuel assembly (i.e., burnups greater than 45 GWd/MTU) containing Zircaloy clad fuel may be treated as intact if both of the following conditions are met:
  - A1. No more than 1% of the rods in the assembly have peak cladding oxide thicknesses greater than 80 micrometers.
  - A2. No more than 3% of the rods in the assembly have peak cladding oxide thicknesses greater than 70 micrometers.
- II. A high burnup fuel assembly should be treated as potentially failed fuel if either of the following conditions are met:
  - B1. The fuel assembly does not meet both criteria A1 and A2; or
  - B2. The fuel assembly contains fuel rods with oxide that has become detached or spalled from the cladding.

The administrative controls section of the SAR technical specifications should specify a program to be implemented by the cask licensee to assure the criteria described above are met prior to loading the cask with high burnup fuel. As part of this program, the licensee may use cladding oxidation thickness measurements or predictions based on consideration of reactor operation variables affecting peak cladding oxidation; i.e., in-core flux, length of a cycle, number of cycles, power excursions, coolant temperature and amount of time at that temperature, the coolant water chemistry, and the cladding material. In cases where there are no previously documented measurements of the oxide thickness to validate cladding oxidation predictions, the program may have to incorporate peak cladding oxide thickness measurements.

For the transportation or storage of fuel assemblies meeting criteria A1 and A2, the applicant should assume, in the containment or confinement analysis of the SAR, that the source term of 50% of the rods with peak cladding oxide thicknesses greater than 70 micrometers are available for release from the cask unless justification for a different fraction is presented. This source term should be added to the source term from the assumed rod breakage fraction identified in the appropriate SRP for normal and off-normal conditions as appropriate for transportation or storage. For the criticality, thermal, and shielding analyses, the applicant should demonstrate that 10 CFR Part 71 and 10 CFR Part 72 requirements are met assuming that the rods with oxide thickness greater than 80 micrometers in a high burnup fuel assembly are failed (e.g., the fuel is allowed to redistribute in a cask) under normal, off-normal, and accident conditions.

For the transportation of individual rods, the applicant should assume, in the containment analysis, that the source term of 50% of the rods with peak cladding oxide thicknesses greater than 70 micrometers is available for release from the cask unless justification for a different fraction is presented. This source term should be added to the source term from the assumed rod breakage fraction identified in the appropriate SRP for normal and off-normal conditions, as appropriate for transportation. For rods with peak cladding oxide thickness greater than 70 micrometers, the cask design should provide a means to assure the fuel geometry during normal and hypothetical accident conditions.

For fuel with average assembly burnups greater than 45 GWd/MTU meeting criteria A1 and A2, the applicant should employ an acceptable methodology (e.g., CSFM methodology) for calculating cladding temperature limits using a 1% creep strain limit. Further, the analysis should demonstrate that the reduced cladding thickness due to oxidation does not compromise the structural ability of the cladding to withstand the expected loads encountered during transportation and storage under normal, off-normal, and accident conditions.

Fuel assemblies that meet criteria B1 or B2 should be handled in accordance with ISG-1, "Damaged Fuel." Alternatively, these fuel assemblies may be treated as intact fuel provided the appropriate demonstration of cladding integrity for these assemblies under normal, off-normal, and hypothetical accident conditions of transportation and storage is included in the SAR. Acceptable data and analyses to support the demonstration of cladding integrity may include, but are not limited to, the following:

- An estimation of the peak cladding oxide thickness and amount of hydrogen absorbed by the cladding during reactor operation to ensure that the oxide thickness and hydrogen concentration associated with hydride embrittled zirconium alloys are below those that could significantly reduce the ductility or overall integrity of the cladding.
- A calculation of the cladding hoop stress to establish both the parameters of the accelerated creep tests and the accuracy of the cladding life prediction. The stress calculation should account for the effects of (1) a reduction of thickness due to cladding oxidation, and (2) the fuel rod internal pressure considering the initial fill gas, the release of fission gases to the rod free volume, the generation of any other gases (e.g., helium, etc.) due to effects caused by the irradiation of any internal cladding coatings and the gas temperature.
- Experimentally derived data and analyses to identify the cladding failure mechanism(s) under expected transportation or storage conditions.

**Recommendation**

The staff proposes that NUREG-1536, NUREG-1617, and NUREG-1567 be modified to permit the transportation and storage of high burnup fuel assemblies if the cladding integrity acceptance criteria, as described above, are met. This ISG will result in modifications to the thermal, containment, criticality, and shielding chapters of these SRPs.

Approved: *E. William Brach*, *5/16/00*  
E. William Brach, Director                      Date  
Spent Fuel Project Office

**References**

1. Cunningham, M.E., et al., Pacific Northwest National Laboratory, "Control of Degradation of Spent LWR Fuel During Dry Storage in an Inert Atmosphere," PNNL-6364, 1987.
2. Garde, A.M., "Hot Cell Examination of Extended Burnup Fuel From Fort Calhoun," DOE/ET/34030-11, September 1986.
3. Gilbert, E.R., C.E. Beyer, and E.P. Simonen, Pacific Northwest National Laboratory, "Technical Evaluation Report of WCAP-15168 (Dry Storage of High Burnup Spent Fuel)," February 2000.
4. Lanning, D.D., et al., Pacific Northwest National Laboratory, "FRAPCON-3: Modifications to Fuel Rod Material Properties and Performance Models for High Burnup Applications," NUREG/CR-6534, Vol. 1 (PNNL-11513, Vol. 1), 1997.
5. Levy, I.S., et al., Pacific Northwest National Laboratory, "Recommended Temperature Limit for Dry Storage of Spent Light Water Reactor Zircaloy-Clad Fuel Rods in Inert Gas," PNNL-6189, 1987.

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of )  
 )  
PRIVATE FUEL STORAGE LLC ) Docket No. 72-22-ISFSI  
 )  
(Independent Spent )  
Fuel Storage Installation) )

CERTIFICATE OF SERVICE

I hereby certify that copies of the "NRC STAFF'S CORRECTED MOTION IN LIMINE TO EXCLUDE CERTAIN EXHIBITS FILED BY THE STATE OF UTAH" in the above captioned proceeding have been served on the following through deposit in the Nuclear Regulatory Commission's internal mail system, or by deposit in the Nuclear Regulatory Commission's internal mail system, with copies by electronic mail, as indicated by an asterisk, or by deposit in the United States mail, first class, as indicated by double asterisk, with copies by electronic mail as indicated, this 31<sup>st</sup> day of May, 2000.

G. Paul Bollwerk, III, Chairman\*  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555  
(E-mail copy to [GPB@NRC.GOV](mailto:GPB@NRC.GOV))

Office of the Secretary\*  
ATTN: Rulemakings and Adjudications  
Staff  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555  
(E-mail copy to  
[HEARINGDOCKET@NRC.GOV](mailto:HEARINGDOCKET@NRC.GOV))

Dr. Jerry R. Kline\*  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555  
(E-mail copy to [kjerry@erols.com](mailto:kjerry@erols.com))

Office of the Commission Appellate  
Adjudication  
Mail Stop: 16-C-1 OWFN  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. Peter S. Lam\*  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555  
(E-mail copy to [PSL@NRC.GOV](mailto:PSL@NRC.GOV))

Atomic Safety and Licensing Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

James M. Cutchin, V\*  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555  
(E-mail to [JMC3@NRC.GOV](mailto:JMC3@NRC.GOV))

Jay E. Silberg, Esq.\*\*  
Ernest Blake, Esq.  
Paul A. Gaukler, Esq.  
SHAW, PITTMAN, POTTS &  
TROWBRIDGE  
2300 N Street, N.W.  
Washington, DC 20037-8007  
(E-mail copies to [jay\\_silberg](mailto:jay_silberg),  
[paul\\_gaukler](mailto:paul_gaukler), and [ernest\\_blake](mailto:ernest_blake)  
[@shawpittman.com](mailto:@shawpittman.com))

Denise Chancellor, Esq.\*\*  
Fred G. Nelson, Esq.  
Laura Lockhart, Esq.  
Ms. Jean Braxton  
Utah Attorney General's Office  
160 East 300 South, 5<sup>th</sup> Floor  
P.O. Box 140873  
Salt Lake City, UT 84114-0873  
(E-mail copy to [dchancel@State.UT.US](mailto:dchancel@State.UT.US)),  
and [jbraxton@email.usertrust.com](mailto:jbraxton@email.usertrust.com))

Connie Nakahara, Esq.\*\*  
Utah Dept. of Environmental Quality  
168 North 1950 West  
P.O. Box 144810  
Salt Lake City, UT 84114-4810  
(E-mail copy to [cnakahar@state.UT.US](mailto:cnakahar@state.UT.US))

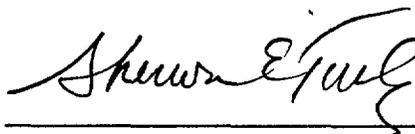
Danny Quintana, Esq.\*\*  
Danny Quintana & Associates, P.C.  
68 South Main Street, Suite 600  
Salt Lake City, UT 84101  
(E-mail copy to [quintana@Xmission.com](mailto:quintana@Xmission.com))

Joro Walker, Esq.\*\*  
Land and Water Fund of the Rockies  
2056 East 3300 South, Suite 1  
Salt Lake City, UT 84109  
(E-mail copy to  
[joro61@inconnect.com](mailto:joro61@inconnect.com))

John Paul Kennedy, Sr., Esq.\*\*  
1385 Yale Ave.  
Salt Lake City, UT 84105  
(E-mail copy to [john@kennedys.org](mailto:john@kennedys.org))

Land and Water Fund of the Rockies\*\*  
2260 Baseline Road, Suite 200  
Boulder, CO 80302

Diane Curran, Esq.\*\*  
Harmon, Curran, Spielberg & Eisenberg  
1726 M Street, N.W., Suite 600  
Washington, D.C. 20036  
(E-mail copy to [dcurran@harmoncurran.com](mailto:dcurran@harmoncurran.com))



---

Sherwin E. Turk  
Counsel for NRC Staff