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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

LBP-00-35

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Before Administrative Judges:

G. Paul Bollwerk, III, Chairman
Dr. Jerry R. Kline
Dr. Peter S. Lam

In the Matter of

PRIVATE FUEL STORAGE, L.L.C.

(Independent Spent Fuel Storage Installation)

Docket No. 72-22-ISFSI

ASLBP No. 97-732-02-ISFSI

December 29, 2000

FIRST PARTIAL INITIAL DECISION
(Contention Utah R, Emergency Plan)

I. INTRODUCTION

1.1 In June 1997, Private Fuel Storage, L.L.C., (PFS) filed an application with the NRC seeking authorization to construct and operate an independent spent fuel storage installation (ISFSI) on the Skull Valley, Utah reservation of the Skull Valley Band of Goshute Indians (Skull Valley Band). The purpose of this facility is to store spent nuclear fuel (SNF) created at commercial nuclear power reactors temporarily until a proposed permanent storage facility becomes available. This first partial initial decision presents the Licensing Board's findings of fact and conclusions of law relative to admitted contention Utah R, Emergency Plan, contesting the effectiveness of the onsite fire protection measures proposed by PFS for its Skull Valley ISFSI facility.

1.2 For the reasons set forth below, the Board finds that, in the face of the challenge of intervenor State of Utah (State) as reflected in contention Utah R, PFS has sustained its burden of proof to demonstrate that the Skull Valley ISFSI complies with the applicable

emergency planning requirements set forth in 10 C.F.R. §§ 72.32(a) so as to protect adequately the safety and health of onsite employees and the public at large relative to fire protection matters. Therefore, the Board concludes that the State's contention Utah R challenge to the PFS license application cannot be sustained.

II. PROCEDURAL BACKGROUND

2.1 Following the June 1997 submission by PFS of its application for a twenty-year license for its proposed Skull Valley ISFSI facility, in response to a July 21, 1997 notice of opportunity for a hearing published in the Federal Register, 62 Fed. Reg. 41,099 (1997), a number of entities, including the State, filed petitions to intervene in any adjudicatory proceeding challenging the PFS license application. Noting its opposition to the application, the State requested that it be admitted to the proceeding as a party pursuant to 10 C.F.R. § 2.714(a). See [State] Request for Hearing and Petition for Leave to Intervene (Sept. 11, 1997) at 1. In response to these intervention requests, the Board issued an initial prehearing order on September 23, 1997, establishing an October 24, 1997 deadline for the submission of supplements to the hearing/intervention requests, including the filing of contentions and their supporting bases. See Licensing Board Memorandum and Order (Initial Prehearing Order) (Sept. 23, 1997) at 2-3 (unpublished). Subsequently, in response to party requests, the Board issued a series of orders that provided a thirty-day extension of this filing period as well as set dates for a site visit and a prehearing conference for the week of January 26, 1998. See Licensing Board Memorandum and Order (Schedule for Prehearing Conference/Site Visit and Responses to Supplemental Petition) (Oct. 24, 1997) at 1 (unpublished); Licensing Board Memorandum and Order (Ruling on Motions to Suspend Proceeding and for Extension of Time to File Contentions) (Oct. 17, 1997) at 11 (unpublished). Thereafter, the State filed its

supplemental petition, including contention Utah R, to which PFS and the staff subsequently filed timely responses. See State Contentions on the Construction and Operating License Application by [PFS] for an [ISFSI] (Nov. 23, 1997) at 16-22; [PFS] Answer to Petitioners' Contentions (Dec. 24, 1997) at 215-36; NRC Staff's Response to Contentions filed by [State] (Dec. 24, 1997) at 40-49; see also [State] Reply to the NRC Staff's and [PFS] Responses to [State] Contention A through DD (Jan. 16, 1998) at 66-69.

2.2 On January 26, 1998, accompanied by the potential parties to the proceeding, the Board visited Tooele County, Utah, including the PFS site and other potentially relevant areas outside of the site, such as proposed intermodal transfer point (ITP) at an interstate highway interchange near Rowley Junction, Utah, some distance to the north of the Skull Valley Band reservation, and the United States Army's Dugway Proving Grounds, which is to the south of the Skull Valley Band reservation. The Board then conducted a three-day prehearing conference in Salt Lake City, Utah, during which it heard participant arguments regarding standing and the admissibility of submitted contentions. See Tr. at 1-835. Thereafter, in its ruling on the State's standing and its contentions, recognizing that the proposed PFS facility would be located wholly within the borders of Utah, the Board found the State's asserted interests in the health and safety of its citizens living, working, and traveling near the proposed ISFSI and its associated SNF transportation routes were sufficient to satisfy the necessary elements to establish its standing as a party in this proceeding. See LBP-98-7, 47 NRC 142, 169, reconsideration granted in part and denied in part on other grounds, LBP-98-10, 47 NRC 288, aff'd on other grounds, CLI-98-13, 48 NRC 26 (1998). Moreover, as is pertinent here, the Board admitted contention Utah R. See id. at 196.

2.3 In its original form as set forth in the State's intervention petition supplement, contention Utah R provided:

Utah R -- Emergency Plan

CONTENTION: The Applicant has not provided reasonable assurance that the public health and safety will be adequately protected in the event of an emergency at the storage site, at the transfer facility, or offsite during transportation in that:

1. PFS has not adequately described the facility, the activities conducted there, or the area in sufficient detail to evaluate the adequacy and appropriateness of the emergency plan, nor has PFS considered specific impediments to emergency response such as flooding, ice, snow, etc.
2. PFS has not identified adequate emergency and medical facilities and equipment to respond to an onsite emergency.
 - a. Tooele County capabilities and equipment are not addressed adequately.
 - b. No provision for extra onsite preparedness giving time for Tooele County to respond, particularly in adverse weather conditions.
3. The plan was not adequately coordinated with the State or other government (local, county, state, federal) agencies.
 - a. PFS has not supported its claim regarding absence of extremely hazardous substances and that no assistance will be required external to Tooele County.
 - b. PFS does not address transportation accidents or accidents at the intermodal transfer point.
4. PFS has not adequately described means and equipment for mitigation of accidents, because it:
 - a. Does not address how it would procure a crane within 48 hours for a tip over cask accident.

- b. Does not adequately support capability to fight fires.
- 5. The Emergency Plan does not provide adequate detail to meet provisions of Reg. Guide 3.67, § 5.4.1 regarding equipment inventories and locations.

Id. at 195-96.

2.4 In ruling on the admissibility of this contention, the Board held (1) paragraph one and subparagraph b of paragraph three were admitted to the degree they related to the ITP; (2) subparagraph b of paragraph four relating to onsite firefighting capabilities was admitted in that it reflected a genuine material dispute so as to warrant further inquiry by the Board; (3) all other sections of paragraphs one, two, subparagraph a of paragraphs three and four, and paragraph five in its entirety, were found to be inadmissible in that they (a) presented no issue of genuine factual dispute; (b) impermissibly challenged the Commission's regulations or generic rulemaking-associated determinations, including Commission determinations relating to the need for offsite emergency response plans for ISFSIs; (c) lacked materiality; (d) lacked factual or expert opinion support; and/or (e) failed adequately to challenge the PFS license application. See id. at 196.

2.5 To reflect this ruling in its April 1998 decision, the Board set forth a revised contention Utah R that read:

UTAH R -- Emergency Plan

CONTENTION: The Applicant has not provided reasonable assurance that the public health and safety will be adequately protected in the event of an emergency at the storage site or the transfer facility in that:

- 1. PFS has not adequately described the ITP, the activities conducted there, or the area near the ITP in sufficient detail to evaluate the adequacy and appropriateness of the emergency plan.

2. PFS does not address response action, emergency information dissemination, or emergency response training programs for accidents at the ITP.
3. PFS has not adequately described the means and equipment for mitigation of accidents because it does not have adequate support capability to fight fires onsite.

Id. at 254. The Board followed with a notice of hearing recognizing that the State and other participants had standing and litigable contentions (such as the admitted portion of contention Utah R) that entitled them to party status in this proceeding. See 63 Fed. Reg. 23,476 (1998).

2.6 Thereafter, in accordance with the Board's order admitting parties and contentions and scheduling stipulations between the parties, see, e.g., LBP-98-7, 47 NRC at 244-45; Licensing Board Memorandum and Order (General Schedule for Proceeding and Associated Guidance) (June 29, 1998) at 5-8 & attach. A (unpublished), the parties conducted discovery on this and other contentions. PFS then filed motions for summary disposition on various contentions, including one relating to the application of Part 72 standards to the Rowley Junction ITP and another seeking summary disposition on the balance of contention Utah R. Although the Board denied the PFS request for summary disposition on contention Utah R, see LBP-99-36, 50 NRC 202, 209 (1999), in a decision dated September 20, 1999, the Board granted summary disposition on those portions of contention Utah R relating to the ITP. See LBP-99-39, 50 NRC 232 (1999). Therefore, the only portion of contention Utah R (as admitted by the Board) that remained to be litigated was paragraph three.

2.7 By order dated February 2, 2000, the Board published a revised schedule that set June 19, 2000, as the beginning of an evidentiary hearing on contention Utah R, as well as two other safety contentions, Utah E/Confederated Tribes F, Financial Assurance, and Utah S, Decommissioning, with findings of fact and conclusions of law on these issues to be filed on or before July 31, 2000. See Licensing Board Order (General Schedule Revision and Other

Matters) (Feb. 2, 2000) attach. A (unpublished). On April 19, 2000, the Board issued a notice of hearing relative to this evidentiary proceeding along with notice of an opportunity to make oral or written limited appearance statements. See 65 Fed. Reg. 24,230 (2000), as revised, 65 Fed. Reg. 37,184 (2000). In accordance with this notice, evidentiary hearings were held in Salt Lake City, Utah, on June 19-22, 2000, and on June 27, 2000. Witnesses testified on behalf of PFS, the staff and the State regarding contention Utah R on June 19, 2000. See Tr. at 1383-668.

2.8 Referencing a July 20, 2000 letter from staff counsel regarding a possible change in the status of Regulatory Guide 3.67, a staff guidance document upon which the State, in part, based its contention Utah R arguments concerning the sufficiency of PFS emergency planning firefighting efforts, on July 21, 2000, the State requested an extension of time to file its proposed findings of fact and conclusions of law. See [State] Request for an Extension of Time to File Findings of Fact and Conclusions of Law on Contention Utah R (July 21, 2000); see also Letter to Licensing Board from Sherwin E. Turk, NRC Staff Counsel (July 20, 2000) [hereinafter Turk Letter]. By order dated July 24, 2000, the Board extended the filing date. See Order (Ruling on Extension Motion) (July 24, 2000) (unpublished). Although the staff chose to comply with the original July 31 deadline, PFS and the State timely filed their respective pleadings on August 7, 2000. See NRC Staff's Proposed Findings of Fact and Conclusions of Law Concerning Contentions Utah R (Emergency Planning) and Utah S (Decommissioning Funding) (July 31, 2000) [hereinafter Staff Findings]; [PFS] Proposed Findings of Fact and Conclusions of Law on Contention Utah R (Aug. 7, 2000) [hereinafter PFS Findings]; [State] Proposed Findings of Fact and Conclusions of Law Regarding Contention Utah R, [PFS] Capability to Fight Fires Onsite (Aug. 7, 2000) [hereinafter State Findings]. On August 28, 2000, PFS, the State, and the staff also filed responses to the other parties' proposed findings of fact and

conclusions of law, including contention Utah R. See [PFS] Reply to the Proposed Findings of Fact and Conclusions of Law of the [State] and the NRC Staff on Contentions Utah E/Confederated Tribes F, Utah R, and Utah S (Aug. 28, 2000) [hereinafter PFS Response]¹; [State] Proposed Response Findings of Fact and Conclusions of Law Relating to Contention Utah R (Aug. 28, 2000) [hereinafter State Response]; NRC Staff's Reply Findings of Fact and Conclusions of Law Concerning Contention Utah R (Emergency Planning) (Aug. 28, 2000) [hereinafter Staff Response].

2.9 Also related to the parties' proposed finding filings regarding contention Utah R is an August 1, 2000 Commission ruling on a previous interlocutory Board referral, pursuant to 10 C.F.R. § 2.730(f), of a Board March 2000 summary disposition ruling on a financial qualifications issue, contention Utah E/Confederated Tribes F, Financial Assurance. See CLI-00-13, 52 NRC 23 (2000), aff'g in part and rev'g in part, LBP-00-6, 51 NRC 101 (2000). Given the possible impact of this decision on the pending evidentiary hearing financial assurance issues, the Board ordered the parties to provide a submission, due at the same time as their proposed finding responses, addressing how the decision impacted the PFS proceeding with regard to the pending determinations on contentions Utah E/Confederated Tribes F and Utah S. See Licensing Board Order (Scheduling and Administrative Matters) (Aug. 4, 2000) (unpublished). Although PFS and the staff elected to provide their discussions in their responses regarding the other parties' proposed findings of fact and conclusions of law relating to contention Utah E/Confederated Tribes F, see PFS Response at 3-4, 9-14; NRC Staff's Proposed Findings in Reply to the [State] Proposed Findings Concerning Contentions Utah S and Utah E/Confederated Tribes F (Aug. 28, 2000) at 39-41, and the State submitted its

¹ Although parts of this response was filed as nonpublic, proprietary information, we refer only to the publicly available portions of this pleading.

discussion on the financial qualification issues as a separate document, see [State] Discussion of the Impact of CLI-00-13 on Proposed Findings of Fact and Conclusions of Law Relating to Contentions Utah E/Confederated Tribes F and Utah S (Aug. 28, 2000), in its contention Utah R findings response the State asserted the Board should interpret this Commission financial qualifications decision to require that all PFS emergency commitments regarding fire protection matters should be incorporated as conditions into any license issued for the Skull Valley facility, see State Response at 5-6. Subsequently, when the Board afforded all the parties an opportunity to respond to the other parties discussions regarding the impact of CLI-00-13, see Licensing Board Order (Granting Motion For Leave to File Reply and Permitting Additional Filings on Impact of CLI-00-13) (Sept. 1, 2000) (unpublished), PFS and the staff addressed, among other things, the State's assertions regarding the application of CLI-00-13 to contention Utah R. See [PFS] Response to the [State] and NRC Staff's Filings Regarding the Impact of Commission Decision CLI-00-13 (Sept. 11, 2000) at 8-9 [hereinafter PFS CLI-00-13 Response]; NRC Staff's Response to the [State] Comments Concerning the Impacts of CLI-00-13 (Sept. 11, 2000) at 4-7 [hereinafter Staff CLI-00-13 Response].

III. PARTIES' POSITIONS ON CONTENTION UTAH R

3.1 As noted above, the only part of contention Utah R that was the subject of the June 2000 evidentiary hearing was paragraph three, as admitted by the Licensing Board in its April 1998 ruling on the standing and contentions of parties. Evidence regarding that matter was heard by the Board on June 19, 2000, in Salt Lake City, Utah, where it received the testimony of several witnesses. Below, we outline the positions of the parties relative to the evidence presented at the hearing.

A. Witness Qualifications

3.2 During the portion of the June 2000 hearing that concerned contention Utah R PFS presented two witnesses in support of its application, Mr. Kenneth Dungan and Mr. Wayne Lewis, both of whom are engineers for PFS. The staff also presented two witnesses, Mr. Paul Lain and Mr. Randolph Sullivan. The single witness presented by the State was Mr. Gary Wise, the current State Fire Marshal of Utah. An initial controversy among the parties is over the weight to be given to the testimony of the witnesses, particularly the State's sole witness, relative to the various fire protection matters in controversy. Below, we set forth the parties' positions regarding the qualifications of the various witnesses.

1. PFS Witnesses Dungan and Lewis

3.3 The two witnesses PFS presented on contention Utah R were Mr. Kenneth Dungan, a fire protection engineer working as a PFS contractor, and Mr. Donald Lewis, the PFS project lead mechanical engineer. PFS asserts that, based on their background and experience, these witnesses were more qualified than the State's witness to make such an assessment regarding the adequacy of the PFS emergency plan. See PFS Findings at 4.

3.4 According to the evidence presented, Mr. Dungan has been practicing in the field of fire protection engineering for nearly thirty years. He earned a bachelor's degree from the University of Maryland in chemical and fire protection engineering in 1971, followed by a master's degree from the University of Tennessee in environmental engineering in 1977. Mr. Dungan, a licensed professional engineer in Tennessee and Pennsylvania, has authored or co-authored more than a dozen articles on fire protection matters, taught college-level courses on the subject, and is a fellow and past president of the Society of Fire Protection Engineers. His professional experience in the fire protection field includes hazards analysis, risk assessment, emergency planning, design, and research and testing. He also has firefighting

experience both as a volunteer and with industrial brigades and in fire brigade training and prefire planning. Mr. Dungan formerly was employed by a United States Department of Energy (DOE) contractor working in the insurance and consulting areas. In 1995, he co-founded Risk Technologies, L.L.C., which provides consulting services for clients needing fire protection, safety, and industrial hygiene advice. Mr. Dungan and his firm have contracted with PFS to advise the applicant regarding the emergency plan for the Skull Valley ISFSI. See Testimony of Ken Dungan and Wayne Lewis on Fire Protection at the [Private Fuel Storage Facility (PFSF)] -- Contention Utah R (fol. Tr. at 1456) at 1-3 and attached resume [hereinafter Dungan/Lewis Testimony].

3.5 Mr. Lewis' experience consists of nineteen years in the nuclear power industry, including ten years of experience with design, licensing, construction, and operation of ISFSIs. He received a bachelor's degree from Montana State University in civil/structural engineering in 1980. He has been involved in fire protection projects throughout his career, including being a systems engineer for DOE in the Yucca Mountain high-level waste repository project. Currently, as the PFS lead mechanical engineer, Mr. Lewis is responsible for the design basis and review of all the design activities for fire protection for the proposed Skull Valley ISFSI. See id. at 3-5 and attached resume.

3.6 The staff agrees that Mr. Dungan and Mr. Lewis should be considered experts in their respective fields so that their testimony should be given due consideration in evaluating their positions as to the adequacy of the PFS emergency plan. See Staff Findings at 11-12. In its proposed findings, the State did not address the purported expertise of these PFS witnesses.

2. Staff Witnesses Lain and Sullivan

3.7 The staff also introduced two witnesses in support of the adequacy of the PFS license application relative to contention Utah R. The witnesses were Mr. Paul W. Lain and Mr. Randolph L. Sullivan, both NRC employees. The staff likewise argues that, given these witnesses' qualifications, their statements should be considered expert testimony in support of the PFS license application on the subjects of fire protection and emergency preparedness, respectively. See Staff Findings at 13-14.

3.8 The proffered evidence indicates that Mr. Lain is currently employed at the NRC as an emergency preparedness specialist in the Office of Nuclear Reactor Regulation. He earned bachelor's and master's degrees in fire protection engineering, respectively, from the University of Maryland in 1983 and from Worcester Polytechnic Institute in 1996. In addition to his educational qualifications, Mr. Lain has over twenty-five years of technical experience. From 1983 to 1991, as a fire protection engineer for the Fire Protections Branch of the Naval Sea Systems Command, Mr. Lain was the project manager for various research projects involving fire protection on United States ships and submarines and performed design reviews and fire protection inspections on these vessels. From 1991 to 1997, Mr. Lain was employed as a fire protection engineer for the DOE Nuclear Material and Facility Stabilization Division, where he reviewed safety analysis reports for projects at the DOE Rocky Flats, Idaho Engineering National Laboratory, Savannah River, and Oak Ridge facilities. In addition, Mr. Lain is a licensed professional engineer in Maryland and has served on several National Fire Protection Association (NFPA) standards committees.² Finally, employed by NRC since 1997,

² As we discuss in more detail in sections III.B.3 and IV.C.3 *infra*, the NFPA is a consensus standards development organization that produces widely-accepted standards on fire safety. NRC is represented on the NFPA committee that establishes standards for nuclear facilities. See Dungan/Lewis Testimony at 2.

Mr. Lain is the author of the fire protection chapter for the agency's fuel cycle facility standard review plan and has conducted safety reviews for nuclear fuel fabrication facilities. See NRC Staff Testimony of Paul W. Lain and Randolph L. Sullivan Concerning Contention Utah R (Onsite Fire Fighting Capability) (fol. Tr. at 1543) at 1-2 and attached statement of professional qualifications [hereinafter Lain/Sullivan Testimony].

3.9 Mr. Sullivan is an NRC emergency preparedness specialist who analyzes the emergency planning implications of potential licensee activities. He has a bachelor's degree in engineering science from the Illinois Institute of Technology and has taken various agency reactor health physics training courses. He is a board-certified health physicist with over twenty-five years of experience in radiological protection and emergency preparedness. Mr. Sullivan has held various positions in the nuclear industry, both with the federal government and in private industry. For example, he has been a consultant for more than a dozen nuclear facilities and has held high-level emergency planning positions at such facilities, including managing a full-scope nuclear power plant emergency preparedness program. Furthermore, in his current position as an NRC emergency preparedness specialist, he has developed and implemented inspection procedures for nuclear power plants, byproduct material licensees, a waste disposal site, and a fuel fabrication facility. See id. and attached statement of professional qualifications.

3.10 PFS has taken the position that, based on their qualifications and experience, the Board should give credence to the testimony of these staff witnesses that the fire protection and the emergency planning procedures for the proposed PFS ISFSI meet all applicable NRC regulations. See PFS Findings at 3-4. The State did not address the qualifications of the staff's witnesses.

3. State Witness Wise

3.11 In support of its position that, relative to fire protection matters, the PFS license application does not conform to NRC emergency planning requirements, the State presented one witness, Mr. Gary Wise. Mr. Wise, who is currently Utah State Fire Marshal, was proffered as expert on “fire safety.” State Findings at 2.

3.12 Mr. Wise, who has over thirty years of experience fighting fires, holds an associate of science degree in fire science from Rancho Santiago College. His fire fighting career began in 1968 as an Anaheim, California Fire Department firefighter/engineer. Thereafter, he held increasingly responsible fire safety positions, becoming Chief of the Orem County, Utah Department of Public Safety Fire Division in 1990 and then State Fire Marshal of Utah in 1996. The responsibilities of the office he currently oversees include (1) licensing and certifying Utah propane, fireworks, and fire suppression industries; (2) reviewing and inspecting newly constructed state-owned buildings; (3) assisting in fire service fire cause determinations and arson investigations; and (4) providing public education in fire and injury prevention. In addition to this professional experience, Mr. Wise has attended a number of fire safety seminars and conferences; is certified in various emergency response areas including hazardous materials operations, emergency medical team (EMT), and peace officer; and is affiliated with various fire safety organizations, including the International Association of Fire Chiefs, the National Association of State Fire Marshals, and the Utah State Fire Chief’s Association (of which he is a past president). See [Testimony] of Gary A. Wise on Behalf of the [State] Regarding Contention Utah R (fol. Tr. at 1588) at 1 and attached resume [hereinafter Wise Testimony].

3.13 Pointing to Mr. Wise’s skills, training, and experience relating to fire safety and evaluations, the State argues that Mr. Wise’s testimony in evaluating the adequacy of the PFS

ISFSI emergency plan regarding fire protection, including its capability to fight onsite fires, should be given “strong weight” by the Board. State Findings at 3. In its proposed findings, the staff declares that Mr. Wise was “well qualified as an expert witness on fire fighting.” Staff Findings at 15. PFS, on the other hand, asserts that, while Mr. Wise may be qualified as a firefighter generally, he has “no particular experience evaluating the adequacy of the fire protection of a nuclear facility or the adequacy of a private or industrial fire brigade.” PFS Findings at 4; see PFS Response at 40. In its proposed findings, PFS also suggests that Mr. Wise’s testimony challenged only the number of firefighters available on site, as well as their training, but not PFS fire protection or its emergency plan. See PFS Findings at 4.

B. Applicable Regulatory Authority, Standards, and Guidance

1. NRC’s Authority in Regulating Emergency Plans for Nonradiological Releases

3.14 Challenging staff assertions that the agency’s central focus is on radiological hazards relating to ISFSI fire safety functions, see Tr. 1553-61; see also Staff Response at 4-5, the State argues that, particularly because the PFS facility is located on a Native American reservation where the State and local governments generally cannot assert their regulatory jurisdiction over matters such as building approvals and fire inspections, NRC has a responsibility to review all aspects of the PFS emergency plan and facility design to protect public health and safety, including nonradiological concerns. See State Findings at 9-11. Both PFS and the staff declare, however, that NRC emergency planning regulations are intended to protect the public and onsite personnel from radiological emissions, not from fires in general, and thus urge the Board to reject this State claim as an improper attempt to expand the agency’s jurisdiction. See PFS Response at 42-44; Staff Response at 4-5.

2. Regulatory Standards and Associated Guidance

3.15 Also in controversy is the question of what regulatory standards and associated guidance govern the assessment of the onsite fire protection elements of the PFS emergency plan. To receive a license from the NRC to construct and operate an away-from-reactor ISFSI, 10 C.F.R. § 72.24(k) requires a description of the applicant's plan for coping with emergency situations. The regulatory requirements generally applicable to such an emergency plan for an away-from-reactor ISFSI are described in 10 C.F.R. § 72.32(a)(1)-(16). According to the State, see State Findings at 3-4, most pertinent to contention Utah R are subsections (5), (7), (8), (10), (11), (12), and (15) of section 72.32(a), which provide in relevant part:

(a) Each application for an ISFSI that is licensed under this part . . . must be accompanied by an Emergency Plan that includes the following information:

* * * * *

(5) Mitigation of consequences. A brief description of the means of mitigating the consequences of each type of accident, including those provided to protect workers onsite, and a description of the program for maintaining the equipment.

(7) Responsibilities. A brief description of the responsibilities of licensee personnel should an accident occur, including the identification of personnel responsible for promptly notifying offsite response organizations and the NRC

(8) Notification and coordination. A commitment to and a brief description of the means to promptly notify offsite response organizations and request offsite assistance

* * * * *

(10) Training. A brief description of the training the licensee will provide workers on how to respond to an emergency

(11) Safe condition. A brief description of the means of restoring the facility to a safe condition after an accident.

(12) Exercises. (i) Provisions for conducting semiannual communications checks with offsite response organizations and biennial onsite exercises to test response to simulated emergencies. . . .

* * * * *

(15) Offsite assistance. The applicant's emergency plans shall include a brief description of the arrangements made for requesting and effectively using offsite assistance on site and provisions that exist for using other organizations capable of augmenting the planned on-site response.

3.16 With respect to the requirements for satisfying 10 C.F.R. § 72.32(a), the State argues that the controlling standard for determining the adequacy of the PFS plan is the detailed implementation guidance provided in section 10.4.5 of NUREG-1567, Standard Review Plan for Spent Fuel Dry Storage Facilities at 10-14 (Mar. 2000) [hereinafter NUREG-1567]. The State notes that, as adopted in March 2000, section 10.4.5 refers to Regulatory Guide 3.67, Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities (Jan. 1992) [hereinafter RG 3.67], which by its terms provides guidance on information that should be included in a 10 C.F.R. Part 30, 40, or 70 fuel cycle or materials facility emergency plan to make it acceptable to the staff. The staff on the other hand, declares that section 10.4.5 of NUREG-1567 was recently revised by Spent Fuel Project Office, Interim Staff Guidance-16, Emergency Planning (June 2000) [hereinafter ISG-16], which deleted the reference to RG 3.67 and substituted guidance that incorporates much of the planning and review guidance that was included in Appendix C to the draft version of NUREG-1567, Standard Review Plan for Spent Fuel Dry Storage Facilities (Oct. 1996) [hereinafter Draft NUREG-1567], that has been utilized for staff ISFSI reviews, including the PFS facility. The staff argues that even though ISG-16 is only interim guidance, the Board should take judicial notice of it under 10 C.F.R. § 2.743(i) as the applicable regulatory criteria because it is the most recent version of the criteria that the staff maintains would satisfy the requirements for a license. See Staff Findings at 7 n.14, 9-10;

see also Staff Response at 2; Turk Letter at 1-2 (forwarding copy of ISG-16). Noting, as does PFS, see PFS Response at 40-41, that as a staff guidance document ISG-16 only represents the staff's view on one means of complying with regulatory requirements, the State also observes that while RG 3.67 and ISG-16 have some similar provisions, ISG-16 lacks a provision like that in paragraph 5.3 of RG 3.67 that states an emergency plan must address the consequences to a worker onsite as well as the public offsite. See State Findings at 4-6.

3. National Fire Prevention Association Standards

3.17 In addition to the issue of the appropriate NRC regulatory regime, also in question is which of two National Fire Prevention Association standards -- NFPA 600 or NFPA 1500 -- should be used to assess the PFS application. NFPA is an organization that has developed codes, standards, recommended practices, and guides to provide a minimal level of occupational health and safety for industrial fire fighters, consistent with Occupational Safety and Health Administration regulations. These standards are developed through a consensus process that brings together volunteers representing varied viewpoints and interests, including NRC representatives, to achieve consensus on fire and other safety standards. See Staff Exh. B at unnumbered page 2 (NFPA 600, Standard on Industrial Fire Brigades (2000 ed.)) [hereinafter NFPA 600³]; Dungan/Lewis Testimony at 2.

3.18 The State asserts that to comply with 10 C.F.R. § 72.32(a) (5), (7), (10), and (11), NFPA 1500 -- the NFPA standard applicable to public, governmental, military, private and industrial fire department organizations -- is the standard with which PFS must comply. See State Findings at 14; see also State Exh. 8 (NFPA 1500, Standard on Fire Department Occupational Safety and Health Program ¶ 1-1.2, at 1500-4 (1997 ed.)) [hereinafter

³ Unless expressly noted, all references to NFPA 600 are to the 2000 edition introduced as Staff Exhibit B.

NFPA 1500]. Based on the testimony of its witness Mr. Wise, the State maintains that NFPA 1500 should be the applicable standard for the PFS fire brigade given the fact that (1) the PFS site is located approximately fifty miles from Tooele City and the Tooele County Fire Department is a volunteer organization; (2) the PFS fire brigade will need to be organized, trained, and equipped to fight interior structural fires; and (3) NFPA 1500 defines a “fire department” as “an organization providing rescue, fire suppression, and related activities,” NFPA 1500 ¶ 1-5, at 1500-5, and the PFS fire brigade will be required to provide rescue services in the event of an emergency. See State Findings at 13-15; see also State Response at 2-4.

3.19 In contrast, noting that NFPA 600 applies “to any organized, private, industrial group of employees having fire fighting response duties, such as emergency brigades, emergency response teams, fire teams, and plant emergency organizations,” NFPA 600 ¶ 1-1.2, at 600-4, PFS and the staff assert that this standard, not NFPA 1500, provides the appropriate measure against which to judge the suitability of the PFS application as it relates to various matters such as organization, training, and equipment. See PFS Findings at 14-15; Staff Findings at 51. According to these parties, in addition to the fact that NFPA 600 covers both fighting interior structural fires and providing emergency response service, because the PFS fire brigade will be dealing only with fires occurring at the facility -- a known area with known hazards -- and is not expected to respond to hazards outside the facility, it fulfills a central criterion that defines the applicability of NFPA 600. See PFS Findings 15-16 (citing NFPA 600 ¶¶ 1-1.2, 1-1.3, at 600-4); Staff Findings at 52-53 (same); PFS Response at 45-46.

C. Need for Offsite Firefighting Assistance for the PFS Facility

1. Offsite Assistance During Working Hours

3.20 According to the State, 10 C.F.R. § 72.32(a)(8), (12), (15), along with the respective regulatory guidance provisions of RG 3.67 and ISG-16, assume that offsite assistance will be available to an applicant to fight fires onsite. And with regard to the two potential sources of offsite help identified by PFS, the first, the Tooele County Fire Department, is not reliable because it is located approximately fifty-five miles from the PFS site, meaning it could take up to ninety minutes for assistance to arrive. See State Findings at 8, 12. Similarly, the State asserts that the availability of resources from the second source -- the somewhat closer town of Terra, Utah -- is totally speculative and without support because, as its witness Mr. Wise recognized, the town's population is very small and it has an all-volunteer fire department whose members do not work there. See id. at 8-9. Without such a reasonably reliable offsite source for fire fighting aid, the State concludes, the PFS emergency plan violates these section 72.32 provisions as well as the requirement in section 72.32(a)(5) that an emergency plan describe the means of mitigating accident consequences, which PFS cannot do given that PFS's own fire fighting resources are inadequate to fight fires during working hours at the ISFSI (which PFS currently defines as from approximately eight a.m. to five p.m., see Tr. at 1509). See State Response at 4-5. PFS and the staff, however, assert that since the PFS fire brigade will be self-sufficient, there is no need to compensate with an arrangement for outside assistance from Tooele County, which the staff maintains does not violate the provisions of NUREG-1567 notwithstanding the fact those provisions indicate that an ISFSI emergency plan should indicate the arrangements for outside assistance. See PFS Response at 41-42; Staff Findings at 45-46; Staff Response at 3-4.

2. Offsite Assistance During Nonbusiness Hours

3.21 The State also argues that, because the only personnel who will be present during nonbusiness hours are security guards who will not be trained as fire brigade members, the PFS emergency plan violates both section 4.2 of RG 3.67 and section 3.8.2 of ISG-16, which indicate that the applicant be able to identify the emergency response organization during all periods, including off-hours. The State maintains that this deficiency is particularly egregious because PFS anticipates it will be approximately ninety minutes before the fire brigade members will be able to respond to the site and contain the emergency and, for the reasons already discussed in paragraph 3.20 above, effective assistance from Tooele County will not be possible to fill the void when the PFS fire brigade is not present. See State Findings at 8-9. PFS, on the other hand, takes the position that the only credible scenarios requiring a prompt response from the fire brigade could take place during normal working hours because there will be no operations occurring during off-hours that would present the risk of a fire that could cause a radiological release, i.e., heavy haul trucks, SNF cask transporters, and locomotives will not operate off-hours so there is no risk of a spilled diesel fuel fire, and electricity will be turned off or not in use so that electrical fires, already unlikely to occur, will pose even less of a hazard and will be unable to spread because of the absence of other combustible material that could endanger a SNF canister or the canister transfer building (CTB). See PFS Findings at 16-17. The staff agrees, asserting that section 3.8.2 of ISG-16 regarding the availability of an onsite emergency response team during off-hours is not applicable for a facility that has no need for such a response. See Staff Response at 2-3.

D. Noncompliance with NFPA 600

3.22 Assuming arguendo that the Board finds that the applicable regulatory standard for the PFS emergency plan is NFPA 600 rather than NFPA 1500, the State also alleges that

the PFS plan to comply with NFPA 600 standards is deficient because (1) the record does not support a showing that there are an adequate number of personnel to staff the fire brigade; (2) PFS has failed to comply with the requirements for protective equipment or clothing; and (3) PFS has failed to provide the requisite specificity in its organizational statement or training description, instead putting forth only “sketchy” details about the type, amount, and frequency of training, the limits of the fire brigade’s actions and responsibility, and the fire brigade’s workplace duties. See State Findings at 15-20.

3.23 With regard to element one, noting that PFS has indicated it plans to have five employees at a time scheduled as members of the fire brigade, the State alleges the PFS facility will not be in compliance with the applicable NFPA 600 standard. This number -- which the State asserts must include a senior fire brigade member to supervise the other members as well as two members for a hose from each of the two fire trucks that are available -- is short of the number needed in light of the NFPA 600, 2000 edition, provision that calls for a minimum of two backup members, an allocation the present PFS staffing plan will not allow. See State Findings at 17-19.

3.24 In addition to the brigade member backup situation, the State also alleges that the overall fire brigade staffing is inadequate, making PFS fire-fighting capabilities inadequate for compliance with NFPA 600. Noting that PFS has stated it plans to train eleven personnel as fire brigade members, thereby ensuring that any absences or vacations will not interfere with there being five members present at the facility during normal hours, the State alleges that an eleven-member fire personnel contingent would be inadequate because PFS is trying to do too many things with too few people. See State Findings at 16-17.

3.25 Referencing the evidentiary record, the State notes that there are a total of twenty-four nonsecurity personnel that PFS indicates it could train as fire brigade members.

The eleven persons PFS has indicated it will train to be brigade members under NFPA standards will include the entire staff of its Instrument/Electrical Maintenance, Mechanical Maintenance/Operations, and Radiation Protection departments. The remaining nonsecurity staff that PFS has indicated are not to be trained as members of the brigade are all persons in its Quality Assurance (three people), Nuclear Engineering (five people) and Administration (five people) departments. Given the PFS testimony that it will have two persons manning the fire hose and one person on back-up, the State calculates PFS will not have enough trained fire brigade personnel to do all it claims it can do to fight fires because it will need one fire fighter to drive the onsite PFS fire truck and another to drive the fire truck located at the Skull Valley Band reservation village, if necessary. Since there would need to be one fire fighter to hook up and operate the hose on each truck, in addition to the two people manning the hose, and an incident commander and backup fire fighters, the State argues the PFS numbers are wholly inadequate to satisfy its proposed protocol. See id.

3.26 PFS, however, asserts it will have enough responders to comply with the latest version of NFPA 600 requiring two backup members and that its eleven trained personnel will be adequate to provide the necessary coverage. According to PFS, it will need only two members to operate a single hose that would be needed, leaving two backup members (one of which will be the senior fire brigade member) and, although it should not need the Skull Valley Band fire truck, if needed one brigade member could retrieve, attach a hose to, and operate the fire truck (i.e., monitor hose pressure) while two other members use the hose on the fire. See PFS Response at 46 & n.39, 48-49 & n.40; see also Tr. at 1666.

3.27 An additional State claim is that PFS is not in compliance with subchapter 5-3 of NFPA 600, which describes necessary fire brigade protective clothing and equipment, because of the proposed location housing the self-contained breathing apparatus (SCBA) and other

personal protective equipment. By placing that equipment inside the Security and Health Physics Building (SHPB), the State argues, the firefighters will be put in danger in that (1) having to retrieve the equipment would cause a delay in their response to a fire in the CTB; and (2) the firemen undoubtedly would be tempted to start an attack on the fire without first retrieving their gear, thus putting their lives in jeopardy if the fire proceeded to burn beyond an incipient stage. See State Findings at 15-16. PFS responds that (1) since PFS has taken no credit for fire brigade actions in calculating the bounding results of the worst credible fire at the PFS facility, response delay caused by equipment location has no safety significance; and (2) the State has shown nothing to support its assertion that firefighters would act before getting the appropriate equipment in contravention of the paragraph 2-2.1.6 of NFPA 600. See PFS Response at 46-47.

3.28 Finally, in connection with the State's concern that, in contravention of NFPA 600 paragraphs 1-4.1 and 2-1.2.1 and 10 C.F.R. § 72.32(a), PFS has not provided the necessary details regarding training, limits to the fire brigade's actions, and the fire brigade members' workplace duties in addition to being in the brigade, see State Findings at 16, PFS and the staff take the position that NRC case law does not require implementing procedures such as these items be included in an emergency plan, see PFS Response at 47-48; Staff Findings at 49-50.

E. Water Supply

3.29 In the State's reply findings it alleges that both PFS and the staff in their findings assume there will be no impediments to obtaining a water supply to fill the two 100,000-gallon water tanks that will feed the proposed foam/water sprinkler system in the CTB. The State, however, claims there is no firm source for the water supply and this deficiency is so detrimental to the emergency plan as to put it in nonconformance with applicable NRC

regulations. See State Response at 6. In its initial findings, the staff indicated it had no reason to believe PFS could not fulfill its water needs by drilling the necessary on-site wells, or by purchasing the water from an off-site source. See Staff Findings at 33-35.

F. License Conditions

3.30 In its reply findings, the State argues that the recent Commission decision in CLI-00-13 dictates that all of the commitments PFS has made relative to emergency planning in its proposed findings to comply with various NFPA standards are required to be added as conditions to any license that is issued. See State Response at 5-6. PFS asserts that the NFPA standards are already enforceable commitments in that they are part of the PFS license application and associated submissions and that, in any event, they do not constitute a major safety area that requires a license condition. See PFS CLI-00-13 Response at 8-9. The staff also asserts that these matters do not constitute significant safety concerns that warrant a license condition and, furthermore, that the State's reading of CLI-00-13 is overbroad in that the decision relates only to the financial assurance items involved with contention Utah E/Confederated Tribes F. See Staff CLI-00-13 Response at 4-7.

3.31 Regarding these matters at issue relative to contention Utah R, below the Board sets forth its factual findings and legal conclusions.

IV. FACTUAL FINDINGS AND LEGAL CONCLUSIONS

A. Findings Regarding The PFS Application and Proposed ISFSI Facility

1. The PFS Facility

4.1 In June 1997, PFS filed an application with the agency pursuant to 10 C.F.R. Part 72 for a twenty-year license that would allow it to create and maintain an ISFSI for an initial twenty-year period with the possibility of renewal for an additional twenty years. PFS plans to

construct, operate, and decommission the facility through equity contributions of its owners and by service agreements that commit customers to preshipment payments and annual SNF storage fees. The PFS ISFSI is designed to accommodate up to 4000 concrete storage casks containing sealed metal canisters holding as much as 40,000 metric tons of uranium in the form of SNF from commercial nuclear reactors. The PFS license application includes, among other things, a safety analysis report (SAR) and an emergency plan. See Staff Exh. A, encl. at 1-1, 17-3 to -5 (Dec. 15, 2000 [NRC Staff] Safety Evaluation Report of the Site-Related Aspects of the [PFS ISFSI] (as revised Jan. 4, 2000)) [hereinafter Staff SER].

4.2 The planned PFS ISFSI is to occupy 820 acres within the confines of the 18,000 acre reservation of the Skull Valley Band in Tooele County, Utah. Although there are no large towns within ten miles of the proposed PFS facility, the thirty-resident reservation village is located about 3.5 miles east-southeast of the PFS site. See id. at 1-1. Beyond the reservation, the nearest residential area relative to the proposed PFS ISFSI is Terra, Utah, which is located approximately a dozen miles away. See Tr. at 1471. Further, the reservation is located approximately twenty-seven miles west-southwest of the Tooele County seat of Tooele City; however, the actual driving distance from the proposed PFS facility to Tooele City is about fifty-five miles. See Staff SER at 1-1; Wise Testimony at 9; PFS Exh. G at 1-4 (PFS Emergency Plan, Chapter 1 (rev. 9)).

4.3 Tooele County and PFS have developed an assistance arrangement under which county fire personnel can be requested in the event of an emergency at the ISFSI. See Tr. at 1547; Staff SER at 16-5; see also PFS Exh. G, at 9.5-2 (PFS SAR, Chapter 9 (rev. 13)). The members of the county fire department in cities in Tooele County, including Tooele City, are all volunteer firefighters and thus hold a variety of other full-time positions such as law enforcement officers. See Wise Testimony at 3. In addition, the PFS emergency plan

describes other PFS assistance arrangements for first aid, medical, and hospital services. For example, the Tooele Valley Medical Center is equipped to provide decontamination and ambulance services and an ambulance procured by PFS will be stationed at the facility to carry any injured personnel to the medical center. See Staff SER at 16-2; PFS Exh. G at 1-4.

4.4 A principal feature of the 860 acre PFS facility is the ninety-nine acre Restricted Area. And relative to fire protection matters, cardinal locations within the Restricted Area are (1) the Canister Transfer Building, where the SNF steel canister will be transferred from a shipping/transportation cask to a storage cask; (2) the storage pad area, where loaded storage casks will be placed on concrete pads in a 2 x 4 array; and (3) the Security and Health Physics Building, which is the control point for the Restricted Area. Within the CTB, there is a cask load/unload bay area, into which a transportation cask containing the SNF canister will be delivered by rail or heavy-haul truck; a crane bay/transfer cell area, in which the SNF canister is transferred from a transportation cask to a storage cask; and a transporter bay, in which a cask transporter vehicle operates to remove the loaded storage cask from the CTB. The SHPB, which contains the central monitoring alarm station for the Restricted Area, fire brigade equipment, and an emergency diesel generator, is the location from which the PFS fire brigade will be dispatched. See Dungan/Lewis Testimony at 5; Lain/Sullivan Testimony at 5-7; see also PFS Exhs. A (PFS SAR, Figure 1.2-1, PFS Facility General Arrangement (rev. 3)), B (PFS SAR, Figure 4.7-1, Canister Transfer Building (Sheet 1 of 3) (rev. 11)), C (PFS SAR, Figure 4.3-1, Canister Transfer Building Fire Zones & Barriers (rev. 11)).

4.5 The Restricted Area is surrounded by an inner chain link security fence and an outer chain link nuisance fence, with an isolation zone and intrusion detection system located between the two fences. See Lain/Sullivan Testimony at 6; Staff SER at 1-1. The Restricted Area will be covered with compacted gravel that will surround the storage cask pads to a depth

of one foot and will be devoid of any significant combustibles. See Dungan/Lewis Testimony at 5. In addition, a minimum distance of 200 feet will be maintained between the storage pad area and any vegetation. See Lain/Sullivan Testimony at 6.

4.6 Outside of the Restricted Area will be the Administration Building (AB) and the Operations and Maintenance Building (OMB). These buildings house administrative and maintenance offices and equipment that are not directly associated with SNF handling and storage. See Dungan/Lewis Testimony at 7, 22.

4.7 PFS has proposed two methods for transporting SNF canisters to its facility. The first proposal is to utilize rail transit, which would deliver transportation casks directly to the outside of the CTB. To implement this transfer mode, PFS must construct a new rail line to the CTB beginning from Low Junction, a junction with the main rail line some distance to the northwest of the Skull Valley Band reservation. The other transportation mode being considered is a combination of rail and heavy haul tractor-trailer by which the transportation casks would be off-loaded from the main rail line onto a truck at the proposed Rowley Junction ITP and transported by the truck the remaining distance to the CTB. Under either method, SNF canisters will be transferred from the transportation casks to the storage casks in the CTB and then placed on storage pads in the Restricted Area. See Staff SER at 1-1.

2. PFS Fire Brigade

4.8 Included as a feature of the PFS emergency plan is a fire brigade that will have the responsibility to fight emergency fires onsite. The fire brigade will consist of a minimum of five people who are to be trained and equipped in accordance with NFPA 600, the standard for industrial fire brigades. At least eleven individuals -- the personnel in the PFS Instrument/Electrical Maintenance, Mechanical Maintenance/Operations, and Radiation Protection departments -- will receive training for the brigade. See PFS Exh. G at 4-3 (PFS

Emergency Plan, Chapter 4 (rev. 9)); see also State Exh. 1, at unnumbered p. 4 (PFS Emergency Plan, Figure 4-1, Functional PFSF Organization (rev. 8)); State Exh. 2, at 1 of 2 (Private Fuel Storage Facility (PFSF) Safety Requests for Additional Information (RAI) No. 2, EP-7 Response).

4.9 Of the five fire brigade members who are required to be on call at all times, one will be a senior member with significant knowledge about the electrical and mechanical equipment at the site. The senior member will supervise the four remaining persons, with two on each fire hose. See State Exh. 2, at 1 of 2. PFS will have access to two fire trucks for emergency purposes: one located at the PFS ISFSI site and one located at the Skull Valley Band village, approximately five miles from the PFS facility. See PFS Exh. G at 1-4; State Exh. 3, at 1 of 1 (PFS Safety RAI No. 2, EP-8 Response).

4.10 The PFS emergency plan does not require that the fire brigade members be at the site during off-hours. In the event of a fire emergency during off-hours, the PFS fire brigade will be summoned. The senior member on call will have a pager and the other members will be available by phone. See PFS Exh. G, at 4-3; State Exh. 2, at 1 of 2.

B. Findings and Conclusions Regarding the Parties' Witnesses

4.11 In section III.A. above, we have presented a detailed description of each parties' witnesses, which we incorporate as part of our findings herein. We turn now to the question of the weight to be given to each witness' testimony relative to the matters as issue regarding contention Utah R.

4.12 When the qualifications of a witness are challenged, the party sponsoring the witness has the burden of demonstrating his or her expertise. See Pacific Gas & Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-410, 5 NRC 1398, 1405 (1977). The qualifications of an expert can be established by showing relevant knowledge, skill,

experience, training, or education. See Duke Power Co. (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 474-75 (1982) (citing Fed. R. Evid. 702).

4.13 The State presented the testimony of Utah State Fire Marshal Gary Wise to support its claim that the PFS emergency plan was inadequate on several counts with respect to fire safety. PFS challenges Mr. Wise as having “no particular experience evaluating the adequacy of the fire protection of a nuclear facility or the adequacy of a private or industrial fire brigade.” PFS Findings at 4. The Board, however, is impressed with the diverse background of Mr. Wise and his experience in the area of firefighting generally. Nonetheless, relative to the State’s request that we “strongly consider” Mr. Wise’s testimony, the State has not established the grounds for giving his opinions special weight. Mr. Wise is an experienced firefighter who has been performing fire safety duties for over thirty years. See supra ¶ 3.12; see also Wise Testimony at 1-3 and attached resume. His general experience, however, does not include membership on, or the evaluation of, a private or industrial fire brigade or (aside from his activities relative to the PFS application) the review or analysis of the fire protection plans for, or the fire hazards present at, a nuclear facility. He admitted his lack of familiarity with NRC guidelines with respect to fire protection or fire brigades at a nuclear facility. See Tr. at 1624-26, 1628-29.

4.14 In contrast to Mr. Wise, the witnesses presented by PFS and the staff possess significant credentials relative to designing or evaluating the adequacy of a nuclear facility fire safety plan and fire brigade. PFS witnesses Dungan and Lewis both have academic and technical training that makes them suited to design nuclear facility fire safety plans. As previously noted, Mr. Dungan has a bachelor’s degree in fire protection engineering, a master’s degree in environmental engineering, and has some thirty years experience practicing fire protection engineering. See supra ¶ 3.4; see also Dungan/Lewis Testimony at 1-3 and

attached resume. Mr. Lewis has a bachelor's degree in civil/structural engineering and nineteen years of experience in the nuclear industry, including ten years working with ISFSIs. See supra ¶ 3.5; see also Dungan/Lewis Testimony at 3-5 and attached resume.

4.15 Staff witnesses Lain and Sullivan also possess relevant credentials and fire safety technical experience, as well as familiarity with NRC regulatory requirements as longtime agency employees. Mr. Lain has a bachelor's degree and a master's degree in the area of fire protection engineering and has worked in the area of fire protection engineering for sixteen years, including nearly ten years of government fire protection experience relevant to analyzing and evaluating the adequacy of fire protection plans. See supra ¶ 3.8; see also Lain/Sullivan Testimony at 1 and attached resume. Mr. Sullivan likewise is qualified to make a determination about the regulatory adequacy of the PFS emergency plan, including its fire protection provisions. A health physicist for over twenty-five years with experience in emergency preparedness and radiological protection, he has a bachelor's degree in engineering science, worked at the NRC in the 1970's as an inspector of emergency preparedness plans at power reactors, and is currently employed at NRC as an emergency preparedness specialist. See supra ¶ 3.9; see also Lain/Sullivan Testimony at 1 and attached resume.

4.16 We thus find that, while the State has established Mr. Wise's general expertise in the area of fire safety, it has not given the Board any reason to attach particular significance or deference to his testimony in the context of this proceeding. The Board nonetheless will give Mr. Wise's testimony appropriate weight commensurate with its merits. We likewise find that PFS and the staff have established the expertise of their witnesses relative to fire safety matters.

C. Findings and Conclusions Regarding Applicable Regulatory Authority, Standards, and Guidance

1. NRC's Authority and Responsibility for Nonradiological Releases

4.17 As was noted in section III.B above, the State also has asserted that the NRC has authority "to review the totality of PFS's Emergency Plan as it relates to PFS's onsite fire fighting capability, including its ability to protect the health and safety of the public and on-site workers, including PFS fire fighters." State Findings at 11. The State believes that this inquiry also includes the "adequacy of PFS's staffing, training, and equipment to effectively fight any and all fires onsite, whether or not they result in a radiological release." *Id.* Further, according to the State, "[i]n this case, there is a void in the typical building approvals and fire inspections that local governments usually undertake because PFS is located on an Indian reservation that performs absolutely no governmental functions." *Id.* at 10. Therefore, the State alleges, it is the NRC's duty to step in and "fill the interstices in the regulations." *Id.*

4.18 As the Commission has made clear, the scope of NRC regulatory authority does not extend to all questions of fire safety at licensed facilities; instead, the scope of agency regulatory authority with respect to fire protection is limited to the hazards associated with nuclear materials. Thus, while the agency's radiological protection responsibility requires it to consider questions of fire safety, this does not convert the agency into the direct enforcer of local codes, Occupational Safety and Health Administration regulations, or national standards on fire, occupational, and building safety that it has not incorporated into its regulatory scheme. See The Curators of the University of Missouri, CLI-95-8, 41 NRC 386, 393 (1995); see also The Curators of the University of Missouri, CLI-95-1, 41 NRC 71, 159 (1995).

4.19 Given this Commission delineation of the agency's fire protection authority, we are unable to accept the State's argument that the agency must take regulatory jurisdiction over the nonradiological aspects of fire protection regulation at the PFS facility because the facility is

located on the reservation of the Skull Valley Band. Moreover, we would point out that whether or not the Skull Valley Band reservation is subject to fire protection regulation by the State or local government bodies, it seemingly is subject to regulation under other generally applicable federal statutes, such as the Occupational Safety and Health Act (OSHA). See Reich v. Mashantucket Sand & Gravel, 93 F.3d 174, 177-82 (2d Cir. 1996) (OSHA applicable to tribal-owned construction business); see also FPC v. Tuscarora Indian Nation, 362 U.S. 99, 116 (1960). Under these circumstances, we decline the State's invitation to delve into all nonradiological fire protections hazards relating to the PFS emergency plan.⁴

2. RG 3.67 and ISG-16

4.20 The parties apparently are in disagreement about the standard to be used to determine whether the PFS plans are acceptable in addressing the possible fire dangers at the ISFSI. See section III.B.2 above. The State has argued that the appropriate NRC guideline is RG 3.67 as referenced in the March 2000 final version of the ISFSI standard review plan, NUREG 1567, asserting, in particular, that section 5.3 of RG 3.67, unlike section 3.6.1 of

⁴ We note that while there is language in section 3.1 of RG 3.67 and section 3.3 of ISG-16 indicating that an evaluation of the "hazardous materials" at a site that may affect the efficacy of an emergency response should be included in an emergency plan, those provisions do not mandate a different result here. Putting aside the fact that these two staff items are guidelines, not requirements, relating to the sufficiency of an applicant's emergency plan, we observe that section 3.1 of RG 3.67 acknowledges that an applicant "may wish to include in the emergency plan some incidents that do not fall within the jurisdiction of the NRC," and offers further guidance that this provision is intended to allow applicants "to have a single emergency plan that can apply to all [applicant] needs and regulatory requirements." RG 3.67, at 3.67-5. In other words, the goal of creating such language in the guidance was efficiency and regulatory convenience for the applicant rather than to thrust the Board into the area of nonradiological fire protection hazards analysis that the Commission clearly has indicated it should eschew.

Finally, to the degree hazardous materials are within the Board's area of concern, PFS has stated that it has complied with 10 C.F.R. § 72.32(a)(13), which requires that an applicant certify it has satisfied the obligations imposed by the Emergency Planning and Community Right-to-Know Act of 1986, 42 U.S.C. § 11001, with respect to hazardous materials at the facility. See Tr. at 1553-54.

ISG-16, requires that the PFS EP “address the mitigation of consequences to workers onsite as well as to the public offsite.” See State Findings at 6. In contrast, PFS and the staff have argued that the appropriate standard for review is ISG-16. For the following reasons, we find that we need not resolve this “dispute” to the degree that it appears to have no material impact on our determination here.

4.21 In pertinent part, section 5.3 of RG 3.67 indicates that “[f]or the events identified in Chapter 2 [regarding the types of accidents that must be considered for emergency planning purposes], briefly describe the means and equipment provided for mitigating the consequences of each type of accident. Include the mitigation of consequences to workers onsite as well as to the public offsite.” RG. 3.67, at 3.67-7. Although the State maintains there is no parallel provision in to ISG-16, in fact, in language identical to that used in the October 1996 draft of NUREG-1567, which was the staff guidance document in effect when the PFS application was filed and reviewed initially, section 3.6.1 of ISG-16 declares that “[t]he plan should include actions to be taken to limit and mitigate the consequences to [the] public and workers.” Compare Draft NUREG-1567, at 6-9 with ISG-16, at 7. We see no material difference between the provision of RG 3.67 and this draft NUREG 1567/ISG-16 standard, to which the State did not object previously. Accordingly, we fail to see there has been any material change in the staff’s guidance relative to the State’s specific objection.

3. NFPA Guidelines

4.22 As described above, see section III.B.3. supra, there also is a controversy among the parties regarding the applicable NFPA standard to be used for measuring PFS emergency planning adequacy. The State has argued that PFS incorrectly has relied upon the NFPA 600 standard rather than the NFPA 1500 requirements, which the State believes should be satisfied because they set minimum standards for an occupational safety and health program that would

provide workers and the public a higher degree of protection than NFPA 600. See State Findings at 6-7. PFS and the staff assert that NFPA 600 is the appropriate guidance for evaluation of the emergency plan.

4.23 NFPA is a respected standard-setting organization whose guidelines reflect a consensus of varying views, including those of the NRC, on the best ways to maximize the effectiveness of fire protection efforts. See Dungan/Lewis Testimony at 2; NFPA 600 at unnumbered p. 2. Nonetheless, because only statutes, regulations, orders, and license conditions can impose requirements on applicants and licensees, see The Curators of the University of Missouri, CLI-95-1, 41 NRC at 98, 150, NFPA standards generally would be considered by the Board only as another type of guidance material in assessing the adequacy of the PFS emergency plan relative to the State's concerns.

4.24 With this in mind, we turn to the question of which of the party-posed NFPA standards -- NFPA 600 or NFPA 1500 -- we should look to in this instance. In support of its position, the State relies upon the language of the provisions in NFPA 1500 and on the testimony of Mr. Wise regarding that provision, both of which we consider in turn.

4.25 NFPA 1500 defines an "Industrial Fire Department" as follows:

An organization providing rescue, fire suppression, and related activities. It can also provide emergency medical services, hazardous material operations, or other activities. These activities can occur at a single facility or facilities under the same management, whether for profit, not for profit, or government owned or operated, including occupancies such as industrial, commercial, mercantile, warehouse, and institutional. The industrial fire department is generally trained and equipped for specialized operation based on site-specific hazards present at the facilities.

NFPA 1500 ¶ 1-5, at 1500-6. In addition, NFPA 1500 adds that:

This standard does not apply to industrial fire brigades or industrial fire departments meeting the requirements of NFPA 600 Industrial fire brigades or fire departments shall also be permitted to be known as emergency brigades, emergency

response teams, fire teams plant emergency organizations or mine emergency response teams.

See id. ¶ 1-1.3, at 1500-4. In contrast, NFPA 600 defines an industrial fire brigade as:

An organized group of employees within an industrial occupancy who are knowledgeable, trained, and skilled in at least basic fire fighting operations, and whose full-time occupation might or might not be the provision of fire suppression and related activities for their employer.

See NFPA 600 at 600-5 (¶ 1-5.23). And in pertinent part, NFPA 600 also states:

[¶ 1-1.1] This standard contains minimum requirements for organizing, operating, training, and equipping industrial fire brigades. It also contains minimum requirements for the occupational safety and health of industrial fire brigade members while performing fire fighting and related activities.

[¶ 1-1.2] This standard shall apply to any organized, private, industrial group of employees having fire fighting response duties, such as emergency brigades, emergency response teams, fire teams, and plant emergency organizations.

[¶ 1.1-3] This standard shall not apply to industrial fire brigades that respond to fire emergencies outside the boundaries of the industrial site when the off-site fire involves unfamiliar hazards or enclosed structures with layout and contents that are unknown to the industrial fire brigade.

See NFPA 600, at 600-4.

4.26 Referencing paragraph A-1-5 of the Appendix A explanatory material for NFPA 1500 that describes industrial fire departments, the State argues that PFS has “overlook[ed] the clear statement in NFPA 1500 that most industrial fire brigade[s] are not fire departments, but where a facility is located far from a municipality that has an organized fire department and the fire brigade will perform rescue operations, it is a fire department.” State Findings at 14 (citing NFPA 1500 ¶ A-1-5 and Wise Testimony at 9). That particular provision states:

The vast majority of industrial fire brigades are not industrial fire departments. Industrial fire departments are those

few brigades that resemble and function as municipal fire departments. These are generally found only at large industrial facilities and at industrial facilities that also perform municipal firefighting, usually where the plant is located far from municipalities with organized fire departments.

NFPA 1500, at 1500-24. Furthermore, in its reply findings the State argues that paragraph A-1-1 of the Appendix A explanatory material for NFPA 600 does not distinguish between industrial fire departments and industrial fire brigades, thus undercutting the position of PFS and the staff that NFPA 1500 applies only to industrial fire departments. See State Response at 3-4. In pertinent part, paragraph A-1-1 of NFPA 600 Appendix A states:

While every industrial fire brigade is unique, just as every municipal fire department is unique, industrial fire brigades, including those that can be referred to as industrial fire departments, have far different needs in many respects from those of municipal fire departments.

NFPA 600, at 600-12.

4.27 We conclude that NFPA 600, not NFPA 1500, provides an appropriate framework within which to review PFS compliance with emergency planning requirements relating to fire protection, albeit with the caveat, as noted in paragraph 4.23 supra, that we take NFPA standards generally to be guidelines, not requirements. Moreover, relative to the language contained in Appendix A of NFPA 1500 and NFPA 600 upon which the State has relied, we note that Appendix A for both standards, which is entitled “Explanatory Material,” includes a preamble immediately proceeding its provisions that declares “Appendix A is not a part of the requirements of this NFPA document but is included for informational purposes only.”

NFPA 600, at 600-12 (emphasis in original); NFPA 1500, at 1500-23 (same).

4.28 Bearing in mind the status of the NFPA standards and explanatory material, we find the circumstances in this instance regarding the training and scope of the duties of the members of the PFS fire brigade to be compelling relative to its status as a NFPA 600 industrial

fire brigade, as opposed to a NFPA 1500 industrial fire department. Besides being on the fire brigade, the PFS employees who are brigade members will have regular duties in, and a concomitant familiarity with, the PFS facility and its activities. This familiarity with, and focus on, the PFS facility will be further enhanced by the fact that PFS fire brigade members will be expected to fight fires that arise from activities in the facility, not offsite fires. As a consequence, they will not be placed in the position of having to cope with fires in unaccustomed areas. Additionally, PFS intends that fire brigade members achieve familiarity with the facility and any fire hazards through various training programs that will have a focus on the particular problem of fires that may lead to radiological impacts. See Lain/Sullivan Testimony at 19; State Exh. 4, at 1 of 2 (PFSF Safety RAI No. 2, EP-21 Response).

4.29 Familiarity with the site and the hazards involved is a persistent theme in the NFPA 600 standard regarding industrial fire brigades. Paragraph 1-1.3, quoted in paragraph 4.24 above, indicates that NFPA 600 standards would not apply to industrial fire brigades that respond to unknown emergencies outside the boundaries of the industrial site when the fire involves unknown hazards or enclosed structures with layout and contents that are unknown to the firefighters. The role that experience and understanding of facility hazards plays relative to this standard's application is further highlighted by the recognition in NFPA 600 paragraph 1-5.23, also quoted above, that brigade members need not have fire suppression as their full-time occupation. Moreover, while this same portion of NFPA 600 does indicate that an industrial fire brigade member should be trained in basic fire fighting skills, there also is a recognition in paragraph A-1-1 of the Appendix A explanatory material notes that "[t]he distinct advantage of familiarity achieves a higher level of industrial fire brigade safety and allows for the fundamental difference between a municipal fire department and an industrial fire brigade." NFPA 600, at 600-12.

4.30 As quoted above, paragraph of A-1-5 of Appendix A to NFPA 600 does suggest that fifty-mile distance between the facility and Tooele City, which has the nearest municipal fire department, is a factor in determining whether PFS should look to satisfy NFPA 1500 versus NFPA 600 standards. In this instance, however, the PFS showing regarding its self-sufficiency in dealing with any problems that may arise in the Restricted Area, which is detailed in section IV.D infra, substantially undercuts the significance of this guidance. So too, the State's assertion that under NFPA guidance an entity labeled an industrial fire brigade can be treated as an NFPA 1500 industrial fire department is not compelling here when, as we have indicated, the circumstances that define the PFS brigade clearly fall within the confines of the NFPA 600 industrial fire brigade, whatever the PFS entity might be called. Finally, although, as Mr. Wise suggests in his testimony, the application of the NFPA 1500 standards might subject the members of the PFS fire brigade to additional training and more comprehensive requirements, see Tr. at 1607-08, that would be the case with the fire suppression team at this facility or any other to which the label "industrial fire brigade" might be attached. PFS is, of course, free to adopt that enhanced standard if it wishes to, but we find it inapplicable for the purposes of our decision on the adequacy of the PFS emergency plan as it relates to the State's contention Utah R issues.

D. Findings and Conclusions Regarding Offsite Firefighting Assistance

4.31 As was noted in section III.C, the State asserts that, contrary to the precepts of 10 C.F.R. § 72.32(a)(8), (12), (15), and the associated regulatory guidance of RG 3.67 and ISG-16, the PFS emergency plan does not provide adequate offsite support capabilities to fight fires that occur onsite during both facility working and nonworking hours. With respect to the State's concerns about the adequacy of offsite assistance, we conclude that the PFS emergency plan is sufficient to protect onsite workers and the general public from the danger of

a fire-related radiological release because fire protection measures have been undertaken at the facility such that, regardless of whether offsite assistance is available, PFS can mount a self-sufficient response that will provide the requisite adequate protection.

1. PFS Facility Fire Prevention/Mitigation Measures

4.32 With its contention Utah R, the State alleges that, in contravention of 10 C.F.R. § 72.32(a), the means and equipment for mitigation of potential accidents involving fires are not adequately described because PFS has not demonstrated adequate support capability onsite or the availability of adequate offsite assistance. In addressing this claim, however, both PFS and the staff point to 10 C.F.R. § 72.122, which provides a general design criterion for fire protection measures at an ISFSI. See PFS Findings at 5; Staff Findings at 16 n.19. Section 72.122 provides in relevant part:

(b) Protection against environmental conditions and natural phenomena. (1) Structures, systems, and components important to safety must be designed to accommodate the effects of, and to be compatible with, site characteristics and environmental conditions associated with normal operation, maintenance, and testing of the ISFSI . . . and to withstand postulated accidents.

* * * * *

(c) Protection against fires and explosions. Structures, systems, and components important to safety must be designed and located so that they can continue to perform their safety functions effectively under credible fire and explosion exposure conditions. Non-combustible and heat-resistant materials must be used wherever practical throughout the ISFSI . . . , particularly in locations vital to the control of radioactive materials and to the maintenance of safety control functions. Explosion and fire detection, alarm, and suppression systems shall be designed and provided with sufficient capacity and capability to minimize the adverse effect of fires and explosions on structures, systems, and components important to safety. The design of the ISFSI . . . must include provisions to protect against adverse effects that might

result from either the operation or the failure of the fire suppression system.

* * * * *

(g) Emergency capability. Structures, systems, and components important to safety must be designated for emergencies. The design must provide for accessibility to the equipment of onsite and available offsite emergency facilities and services such as hospitals, fire and police departments, ambulance service, and other emergency agencies.

As part of their argument in support of the adequacy of the fire protection provisions of the Skull Valley facility emergency plan, PFS and the staff have asserted that the facility's design, made in conformance with section 72.122(c), supports a finding of facility fire protection self-sufficiency such that offsite assistance is not necessary during working and nonworking hours. Specifically, PFS and the staff presented witnesses -- whose testimony was essentially uncontested -- who described the specific facility design fire prevention or mitigation elements.

4.33 In addition to providing a description of the layout of the proposed ISFSI as it relates to fire protection considerations, findings with respect to which are set forth in section IV.A.1 above, PFS witnesses described the onsite combustible materials that required consideration in fashioning fire protection measures to prevent the release of radiological materials and the methods that PFS has proposed to respond to a fire event at the sections of the Restricted Area that are central from a fire safety standpoint. Moreover, the testimony of staff witnesses confirmed this PFS showing, which was intended to establish that the facility and the associated emergency plan are adequate in description and construction to fulfill the agency regulatory requirements regarding prevention of fire-related radiological emissions. See Dungan/Lewis Testimony at 5-25; Lain/Sullivan Testimony at 5-12.

4.34 As described by PFS witness Lewis, the combustible materials that could be present at the proposed Skull Valley ISFSI include (1) the diesel fuel in the cask transporter

vehicle, a tracked vehicle (i.e., without tires) that will move empty storage casks into the CTB transfer cells and then move the storage casks from the CTB transfer cells to the concrete storage pads; (2) if the Rowley Junction ITP is used, the diesel fuel in the heavy-haul trucks that could be used to transport the casks from the ITP to the CTB; (3) the tires on the aforementioned truck; (4) fuel and tires of vehicles that may be intermittently present in the Restricted Area; (5) the fuel and tires of the diesel fuel delivery truck that would bring fuel to the cask transporter vehicle; (6) fuel and tires of maintenance, security, and emergency vehicles not entering the Restricted Area; (7) diesel fuel in the tanks of locomotive engines, if they are used to transport the casks between offsite locations and carry the casks to and from the CTB; (8) fuel for the backup generator at the SHPB; (9) diesel in the tank for the diesel-driven water pump located outside of the Restricted Area; (10) the diesel fuel supply for the cask transporter; (11) the diesel fuel supply for the heavy haul trucks or the onsite vehicles; (12) the propane tanks for use in heating the SHPB and CTB; (13) propane for heating the OMB and AB; and (14) gasoline stored in containers for use in equipment such as tractors, lawn mowers, or snowblowers. See Dungan/Lewis Testimony at 6-7.

4.35 Various fire protection designs will be employed at the ISFSI to combat the possible fires that could ignite from these combustibles that could be present at the site. Employing the “defense-in-depth” principle in designing its ISFSI, PFS has sought to reduce the likelihood of fires as well as utilize detection systems and automatic and manual suppression systems for those that do occur, provide for compartmentalization and spill control to prevent the spread of fire, and implement structural fire resistance. Additionally, PFS has committed to

adhering to the standards set out in NFPA 801, the national consensus standard for providing fire protection for nuclear materials facilities.⁵ See id. at 7.

4.36 Relative to the design features that PFS has proposed to minimize the likelihood of a fire event in the portions of the Restricted Area that are of principal concern from a fire safety standpoint, PFS and the staff provided testimony concerning two areas of the proposed facility in which spent fuel transportation and/or storage casks will be handled -- the CTB and the storage pads. See Dungan/Lewis Testimony at 8-9; Lain/Sullivan Testimony at 5-7.

a. Canister Transfer Building

4.37 If rail transportation along the Low Rail Spur is used to bring the casks to the CTB, the CTB will be protected from locomotive-induced fuel spills and fires in several ways. Administrative controls and physical measures, such as placing a spacer car between the transportation cask rail car and the locomotive and the use of rail stops, will not allow locomotives within the CTB and, in fact, will leave the locomotive fuel tank some thirty-six feet outside the CTB. Also, to prevent diesel fuel spills from getting into the building from the outside, the ground near the entrance of the CTB will be sloped away from the building. See Dungan/Lewis Testimony at 9, 19; Lain/Sullivan Testimony at 11-12.

4.38 In addition to office/equipment rooms and a low level waste storage room, all of which are separated from other areas by a one-hour fire barrier and, in the latter instance, has metal barrel storage for any contaminated combustible materials, the CTB includes an operations area that contains three bay areas: the cask transporter bay, the crane/transfer cell bay, and the cask load/unload bay. The cask transporter bay, which is the area where the cask transporter moves storage casks in and out of the transfer cells, is separated from those cells

⁵ NFPA 801, which was developed with NRC participation, provides a national consensus standard for fire protection for nuclear materials facilities. See Dungan/Lewis Testimony at 7.

by a two-hour fire barrier. In contrast to the crane bay, which has a ninety-foot ceiling, each of the three transfer cells within the crane bay has no ceiling to allow the gantry crane to perform SNF canister transfer operations between transportation and storage casks, although they are separated from each other and the load/unload bay by thirty-foot high, one-foot thick concrete walls. Finally, the cask load/unload bay, which is the area used to unload transportation casks from rail cars or heavy haul trailers, has a crane bay, and two low bays. The crane bay is an extension of the crane bay/transfer cell while each of the low bays, which are on opposite sides of the crane bay, has a twenty-two-foot doorway and a thirty-foot high ceiling that provides shelter for the heavy haul vehicle or the transportation cask rail car during load/unload operations. See Lain/Sullivan at 7.

4.39 Relative to heavy-haul truck fuel spills in the CTB, sumps and a one-inch spill retention threshold are intended to keep diesel fuel spilled in the cask load/unload bay from spreading a fire toward the crane bay/transfer cell area. An automatically activated foam-water sprinkler system will be provided for the cask load/unload bay as well. The crane bay/transfer cell area floor also is sloped to prevent diesel fuel from a cask transporter from entering a transfer cell. In addition, the crane bay/transfer cell area will be equipped with smoke detectors, portable fire extinguishers, and hose stations for manual suppression. Finally, administrative controls along with closed vehicle access doors help to prevent the cask transporter from being in the CTB during a SNF canister transfer procedure, thus reducing the risk of fire during transfer. See Dungan/Lewis Testimony at 8-9, 12-13; Lain/Sullivan Testimony at 9, 12.

4.40 The vehicle fuel-related risk of fire has been further reduced by utilizing noncombustible materials in CTB construction. In addition to the use of the fire-rated barriers described in paragraph 4.38, the CTB itself is constructed out of steel-reinforced concrete

material that is noncombustible and can withstand large amounts of heat for long periods of time. Further, the size of the CTB (260 feet long by 205 feet wide) contributes to fire prevention in that heat from a fire would dissipate due to the high clearance of the ceiling in the crane bay area. See Dungan/Lewis Testimony at 8, 17; Lain/Sullivan Testimony at 8-9.

b. Storage Cask Pad/Restricted Area Considerations

4.41 With regard to the storage cask pads, PFS has taken precautionary measures to reduce the possibility of fuel contamination and fire hazards. PFS plans to cover the Restricted Area with compacted gravel that would be one-foot deep in the storage pad area. In addition, significant combustibles will be kept at distance from the storage casks to reduce the risk of fire. Thus, a fire break of at least 200 feet will be implemented between the nearest storage pad and any vegetation. Further, the rail line will be at least 110 feet away from the nearest storage pad and it will be 425 feet from the CTB to the nearest storage pad. Along these same lines, the cask transporter diesel fuel storage tank will be 700 feet from the nearest storage pad and 200 feet from the CTB, while the nearest propane tank will be 1800 feet away from the storage pads and the CTB. See Dungan/Lewis Testimony at 5, 9, 17, 23; Lain/Sullivan Testimony at 5-6. All these distances are deemed adequate to protect the storage casks from damage from diesel or propane storage tank fire or explosion. See Dungan/Lewis Testimony at 23-25.

2. Offsite Assistance During Working Hours

4.42 Section 3.6.4 of ISG-16, as well as section 5.4.2 of RG 3.67, call for a description of conditions that would require offsite protective actions and postulated accidents that could meet any of the conditions so as to require protective action recommendations to offsite authorities. See ISG-16, at 10-11; RG 3.67, at 3.67-8 to -9. For the reasons set forth below, we conclude that the extensive precautions that PFS has taken to prevent fire scenarios that

could result in radiological contamination will not require an offsite assistance response during working hours.

a. PFS Assessment of Credible Fire Scenarios

4.43 A description of the various combustible materials creating risks for fire was given at the evidentiary hearing. See Dungan/Lewis Testimony at 9-24; Lain/Sullivan Testimony at 7-12. The items of concern were diesel and gasoline fuel, truck tires, propane, gasoline, and in-situ process combustibles, such as electrical wires, see Dungan/Lewis Testimony at 10, each of which is discussed below.

i. Diesel and Gasoline Fuel

4.44 Use of diesel fuel (as opposed to gasoline) also can be considered a safeguard to prevent any radiological release due to a combustion fire because diesel fuel is difficult to ignite under normal conditions. Diesel fuel has a flash point in excess of 120° Fahrenheit (F) and a boiling point range of 380°F to 650°F. Since at room temperature diesel fuel will not give off enough vapors to support combustion, it must be heated above its flash point. The auto-ignition temperature of diesel thus is greater than 490°F and can be as high as 545°F. There are no in situ sources at ground or floor level capable of reaching this temperature level, however. The only credible source for ignition thus is the hot surface of a vehicle engine and, while it is possible that a hot engine could ignite the spray from a fuel line break, such a fuel spray fire would burn only within a few feet of the line so as not to be severe enough to create a radiological hazard relative to the transportation or storage casks. See id. at 11-12.

4.45 In addition, PFS has taken specific precautions with respect to diesel fires from the cask transporter because of the direct role the transporter plays in transferring the newly loaded concrete storage casks from the transfer cells to the storage pad area, thereby putting combustibles in close proximity to the storage casks. First, the cask transporter will contain

only a fifty-gallon tank, thereby limiting the amount of combustible material. Furthermore, PFS will preclude the cask transporter from being in the transfer cell area during a transfer by implementing administrative procedures requiring transfer cell sliding shield doors to be closed after a transportation cask and empty storage cask are moved into a transfer cell, thus preventing the transporter from entering the cell during a transfer. And in the event some diesel does leak, as was noted in paragraph 4.39 above, the floor of the crane bay/transfer cell area will be sloped to prevent any fuel from seeping into the transfer cell area. Finally, the cask transporter will be equipped with a manual fire extinguisher and a driver trained to use it. See id. at 12-13.

4.46 Further, pursuant to the guidance from section 6.5.5.2 of NUREG-1567 that a credible site fire should not exceed the fire assumptions in a cask fire analysis, see NUREG-1567, at 6-20, PFS evaluated the consequences on a storage cask of a “worst case” fire involving fifty gallons of diesel fuel from the cask transporter under two separate scenarios: one at the storage pad and one in a transfer cell itself. The storage cask chosen by PFS -- the HI-STORM cask -- was itself evaluated in a scenario involving a 200-gallon diesel fuel fire for fifteen minutes. The results of that evaluation showed that only a few inches of the storage cask’s heavy concrete structure were affected, and that the steel spent fuel canister inside the cask stayed within acceptable thermal limits. These evaluations demonstrated that the threat posed by a cask transporter fire, in which the fifty gallons of fuel would be expected to burn in five minutes, is not one that will impact either the integrity or performance of the HI-STORM storage cask or the steel SNF canister. See Dungan/Lewis Testimony at 13; Lain/Sullivan Testimony at 9-10.

4.47 In addition, PFS evaluated the canister transfer cask, which is the container that is used to transfer the SNF canister from the shipping cask to the storage cask, for fire integrity

in a credible accident scenario. The canister transfer cask is protected by lead shielding and a water jacket, which would act like a heat sink to slow down the thermal stress during a fire. The bounding fire threat to a loaded transfer cask was considered to be a fire in the load/unload bay area. Because the calculated temperatures from this bounding fire threat were below the short-term temperature limits for the transfer cask and the SNF canister, which were found to be 700°F and 775°F, respectively, thus demonstrating this credible bounding accident scenario did not pose a threat to the transfer cask or the steel SNF canister. See Lain/Sullivan Testimony at 10.

4.48 Also incorporated into the facility design is a foam/water sprinkler system in the cask load/unload bay that, in accordance with NFPA 801, discharges foam for ten minutes and then has a sixty-minute water flow capacity. PFS has calculated that there will only be a need for two sprinklers, but will install three as a precautionary measure. The sprinkler system will be automatically activated by a flame detector and/or fusible elements present in the heads of the sprinklers. Also, as system of hydrants and standpipes is also planned both inside and outside the CTB to provide water for fighting fires. To supply these systems, there will be two water tanks installed outside of the Restricted Area. Water from the tanks will be supplied to the systems by one of two pumps, one powered by an electric motor and the other, a backup, by a diesel engine. Either pump's capacity is sufficient to meet the systems needs, thus ensuring that the loss of electrical power will not hinder sprinkler or hydrant/standpipe system operation. See Dungan/Lewis Testimony at 10, 15, 20; Lain/Sullivan Testimony at 13.

4.49 According to PFS calculations, approximately 63,000 gallons of water would be necessary at any given time to supply the sprinkler system and the fire hoses for a worst case water demand. NFPA 801 requires that the fire water tanks be refilled within eight hours. According to PFS, it has complied with this guideline because it has an extra 100,000 gallons of

water in a second tank. Although the staff calculated the necessary supply at approximately 94,000 gallons, even using this figure PFS still complies with NFPA because it has an extra 100,000-gallon tank. See Dungan/Lewis Testimony at 15, 28-29; Lain/Sullivan Testimony at 13; Tr. at 1575.

4.50 If a rail spur line is not built to bring the transportation casks from the rail main line to the PFS facility, the proposed alternative to use heavy-haul trucks to bring the transportation casks from the Rowley Junction ITP also presents a possible diesel fire scenario. As with the cask transporter, PFS will restrict the size of the truck diesel tanks to a total of three hundred gallons to limit the level of fire should any fuel leak. And, as was noted in section 4.39 above, in the event of a spill in the cask load/unload bay area, fuel will be prevented from reaching the transfer/storage casks by a raised threshold between that bay and the transfer cell area. Additionally, the cask load/unload bay area floors are sloped to direct any leaking fuel into two sixty-foot long, six-foot wide sumps, which, in turn, are sloped to direct the fuel away from the bay center where any shipping cask and crane lifting cables would be located. Each sump is designed to hold the 300-gallon fuel load from a heavy-haul vehicle plus thirty minutes of flow from the foam/water sprinkler system. See Dungan/Lewis Testimony at 14-15; Lain/Sullivan Testimony at 9.

4.51 PFS also evaluated the scenario of a diesel fuel fire in the CTB cask load/unload bay from a heavy-haul vehicle fire, taking into consideration the vehicle's 300 gallons of diesel fuel and rubber tires as combustible materials. Without taking credit for the mitigative benefits of the CTB smoke removal, cask load/unload bay sump, and foam/water sprinkler systems, or any manual fire suppression efforts, a computer analysis calculating the fire plume temperature in the lower bay of the cask load/unload area and the average upper layer temperature of the high area of the crane/transfer cell bay nonetheless showed that the planned CTB concrete

walls could withstand a fire without collapsing and the upper layer temperature (which was half of what would be needed to cause a facility combustibles flashover/auto-ignition) would not affect a loaded canister transfer cask. See Dungan/Lewis Testimony at 16-17; Lain/Sullivan Testimony at 11.

4.52 In addition to the heavy-haul trucks, locomotives used to move the spent fuel transportation casks between the main rail line junction and the PFS facility will also be carrying diesel fuel and thus present a source of combustible material. As was noted in section 4. above, administrative controls will be implemented to prevent locomotives from entering the CTB at any time. Further, the cask car and spacer car will be positioned such that when the transportation cask is in the middle of the bay for pickup by the overhead crane, the locomotive will remain outside the building. Rail clamps will also be physically installed on the tracks to prevent any placement errors. Moreover, by placing a spacer car between the spent fuel car and the locomotive, the distance between the spent fuel transportation casks and any potential sources of combustibles will be enhanced, with the closest part of the locomotive sixteen feet away from the CTB and the locomotive diesel tanks thirty-six feet away from the CTB. See Dungan/Lewis Testimony at 18-20; Lain/Sullivan Testimony at 11-12.

4.53 Notwithstanding these precautions, PFS did analyze a 6400-gallon locomotive diesel fuel spill and its effect on the casks located on the storage pads. Assuming no sloping of the tracks away from the storage casks and calculating the heat flux from three different-sized pool fires under the locomotive and their effects on storage casks, PFS determined that, with the storage casks located some 110 feet from the locomotive, the heat flux produced on the storage casks would be less than the cask transporter fire scenario described in paragraph 4.46 above, thereby bounding this locomotive fire scenario. See Dungan/Lewis Testimony at 20-21; Lain/Sullivan Testimony at 11-12.

4.54 Further, with respect to other diesel and gasoline sources within the Restricted Area, PFS has demonstrated that the effects of any fire relative to these combustibles would not fall outside the cask transporter/locomotive bounding analyses described above. As was referenced in paragraph 4.44 above, because at room temperature diesel fuel does not give off enough vapors to support combustion, diesel fuel has a high flashpoint that must be reached for ignition, thereby making hot engine surfaces the only credible ignition sources. Consequently, ignition of the various nonvehicular diesel fuel sources, such as the SHPB electrical backup diesel generator tank and the supply tank for other PFS vehicles such as the heavy-haul trucks, is unlikely. Further, PFS maintenance trucks will have smaller diesel fuel tanks than the cask transporter vehicle. Although diesel fuel for the cask transporter will be brought onsite by a diesel truck with a maximum capacity of 10,000 gallons, the truck and the storage tank will be no closer to the CTB and the storage pads than 200 feet and 700 feet, respectively, distances much beyond those in the locomotive bounding scenario. See Dungan/Lewis Testimony at 11, 17-18.

4.55 On the other hand, because gasoline ignites at a lower temperature than diesel fuel, PFS intends to regulate the use of gasoline in the Restricted Area, keeping the use of these gasoline-powered vehicles and machinery and allowing such equipment to be present only intermittently in the Restricted Area, if at all. Yet, even if there were a gasoline ignition in the Restricted Area, because large gasoline and diesel fires burn with similar characteristics there would be little threat to the SNF casks as established by the previous cask integrity bounding limits. See Dungan/Lewis Testimony at 11-12, 17-18.

ii. Propane Fires

4.56 PFS also prepared a safety analysis regarding onsite propane sources. Propane, which will be used for heating the CTB and the SHPB, will be stored either in single or multiple

tanks that contain no more than 20,000 gallons of fuel and are designed in accordance with the requirements of NFPA 58. The tank (or tanks) will be located a minimum of distance of 1800 feet from the CTB and the nearest cask storage pads. See Dungan/Lewis Testimony at 23; Lain/Sullivan at 6.

4.57 Distribution of propane will occur through underground buried, all-welded steel piping to reduce the risk of leakage. Because of the large distances from the tanks to the buildings, the system will include a compressor to provide the necessary force to propel the propane vapor. An excess flow monitor will also be installed to regulate the flow of fuel to the buildings so there will not be excess pressure in the pipelines. Finally, the propane heaters at the CTB, which will comply with the requirements of NFPA 54, will be installed on the roof of the building so that no propane can enter the CTB. See Dungan/Lewis Testimony at 23, 25.

4.58 PFS evaluated the potential impact of propane fires on the storage casks at the facility as well. Two scenarios were found that could pose a threat to the canisters: (1) an uncontrolled vapor cloud explosion from the propane used for space heating; and (2) flash fires and boiling liquid expanding vapor explosions. Regarding the vapor cloud explosion scenario, PFS concluded that the type of large, rapid, concentrated release that would be needed for this scenario would not be possible without a tank failure. Yet, based on the locations of the tanks, the openness of the area, and the lack of any credible electrical ignition sources, the only high energy ignition source capable of igniting a large release -- a turbulence-causing obstruction that could build a flame-front pressure wave that would cause a tank to explode -- would not exist. Further, although PFS determined that the second scenario -- flash fire/boiling liquid expanding vapor explosion that would produce a short duration, high-radiative heat flux -- was more credible, the separation distance from the propane storage tanks and the

noncombustibility of the CTB structure and the spent fuel casks would prevent this scenario from threatening SNF cask or canister integrity. See id. at 24-25.

iii. In Situ Combustibles

4.59 Finally, the evidence before the Board indicates that a small electrical fire is the only likely scenario for in situ combustibles. Such incidents will not be a threat to cask integrity, however, because they cannot generate enough energy to propagate in structures such as the CTB or have an impact on storage cask configurations. The fact that, outside the electrical equipment room, all electrical cable will be encased in conduit to protect against potential electrical fires further dissipates the efficacy of these combustion scenarios. See id. at 25; Tr. at 1485. By the same token, the fire water pumps are located outside the Restricted Area and have a separate wiring circuit, so that a fire in the CTB will not impact or affect the pumps' operability. Tr. at 1527.

iv. Conclusion

4.60 The State has argued that, although 10 C.F.R. § 72.32(a)(8), (12), and (15), along with associated regulatory guidance provisions, operate on the assumption that offsite assistance will be available to an applicant to fight fires onsite, this presumption should not apply to PFS because the PFS plan calls for offsite emergency assistance to come from Tooele City, which is over fifty miles away from the PFS site by road so as to be effectively unavailable. As a consequence, the State has asked the Board to take into account the unavailability of offsite assistance in evaluating the PFS emergency plan. See State Findings at 11-12.

4.61 We, however, decline to adopt the State's assertion that the PFS emergency plan is insufficient to satisfy the applicable regulatory requirements found in 10 C.F.R. § 72.32(a) regarding the provision of adequate offsite assistance. Neither 10 C.F.R. § 72.32(a) nor the regulatory guidance referenced by the parties (i.e., RG 3.67 and ISG-16) indicate that offsite

assistance must be used at an ISFSI. Instead, they provide criteria that are to be utilized in assessing the sufficiency of any emergency plan provisions that do rely on such assistance. See 60 Fed. Reg. 32,430, 32,436 (1995) (in response to public comment issue thirty-four, ISFSI emergency planning requirements final rule statement of considerations indicates that offsite emergency organizations are those that “may” be needed to respond to an emergency). As is shown by the detailed description above, PFS has addressed the relevant, credible scenarios involving the ignition of a fire that reasonably could result in a SNF transportation or storage casks radiological release and has demonstrated that, relative to its fire protection efforts during working hours, no offsite assistance is required because PFS facility design and firefighting capabilities are self sufficient. Moreover, even though offsite assistance is not necessary to a finding that PFS has an adequate emergency plan, as is required in section 72.32(a)(15), PFS has made arrangements with Tooele County for potential assistance from county fire protection services. See PFS Exh. G at 9.5-2; Tr. at 1547.

3. Offsite Assistance During Nonbusiness Hours

4.62 The State also claims that PFS has failed to show that necessary offsite assistance will be available during nonbusiness hours. In this regard, noting that PFS does not plan to have any fire brigade members onsite during nonbusiness hours, the State argues that PFS has failed to comply with both section 4.2 of RG 3.67, which requires a description of the “onsite emergency response organization for the facility, and include the organization for periods such as offshift, holidays, weekends, and extended outages when normal operations are not being conducted” and section 3.8.2 of ISG-16, which contains almost identical criteria. RG 3.67, at 3.67-6; see ISG-16, at 12. Further, the State asserts that the admitted ninety-minute response time by on-call PFS fire brigade members is wholly inadequate to establish the sufficiency of the PFS emergency plan. See State Findings at 8-9. Assuming,

however, this guidance regarding the onsite emergency response organization is applicable to the question of offsite assistance, it is apparent that PFS likewise has demonstrated that offsite assistance during nonbusiness hours is not required to provide the requisite protection for the public health and safety.

4.63 PFS has declared that no spent fuel canister transfers will take place during nonbusiness hours. With electrical machinery (e.g., cranes) not running in areas in which radioactive releases are a concern, an electrical fire becomes of minimal concern as well. Combustion fires also would not be a concern because the potential significant combustion ignition sources -- heavy-haul truck, cask transporters, locomotives, and other vehicles -- will not be operating. See Dungan/Lewis Testimony at 11, 26-27; Tr. at 1512-13, 1528-29, 1568. Moreover, even if a fire were to start and continue unmitigated, the bounding scenarios described by PFS make it apparent that cask or spent fuel canister fire exposure would be insufficient to cause a confinement breach with radiological releases. See Dungan/Lewis Testimony at 29. Accordingly, we likewise find that because no offsite assistance is necessary during off hours, there is no breach of any applicable regulatory requirements or guidelines, such as RG 3.67 and ISG-16, in connection with the PFS plan to place fire brigade members on call during nonbusiness hours.

E. PFS Noncompliance with NFPA 600 Standards

4.64 In addition to its arguments concerning the applicability of NFPA 600, the State also has asserted that the PFS emergency plan does not comply with NFPA 600, and thus does not comply with 10 C.F.R. § 72.32(a), in three respects: (1) the PFS brigade staffing does not conform with paragraph 5-3.5 of NFPA 600, which requires a two-person backup; (2) the location where PFS has chosen to store protective clothing and equipment does not meet the NFPA subchapter 5-3 standard; and (3) PFS lacks an adequate organizational statement in

conformance with paragraphs 1-4.1 and 2-1.2.1 of NFPA 600. See State Findings at 15-16.

We conclude that PFS has met these NFPA 600 standards.

1. Fire Brigade Structural Requirements

4.65 Relative to the State's concern regarding backup staffing, paragraph 5-3.5 of the 2000 version of NFPA 600 indicates that for industrial fire brigades that perform interior structural fire fighting:

Industrial fire brigade members using [self-contained breathing apparatus (SCBA)] shall operate in teams of two or more who are in communication with each other through visual or voice contact to coordinate their activities and are in close proximity to each other to provide assistance in case of an emergency.

Where industrial fire brigade members are involved in operations that require the use of SCBA, at least two members shall be assigned to remain outside the area where respiratory protection is required.

NFPA 600, at 600-11. This standard's call for two fire brigade members to remain outside the respiratory protection area was a change from the previous version, which only required one member to do so. See State Exh. 6, at 600-12 (NFPA 600 Standard on Industrial Fire Brigades (1996 ed.)). PFS witness Dungan initially stated PFS only intended to have one fire brigade member remain outside the "hot zone" (i.e, the area where SCBA are worn, see NFPA 600 ¶ 2-2.4(2), at 600-8) as backup. See Tr. at 1506-07. Nonetheless, after being informed that a revision to the guidelines quoted above in the 2000 edition of NFPA 600 made it clear that two brigade members are needed for a respiratory protection area/hot zone backup, Mr. Dungan stated that PFS would comply with this NFPA 600 guideline to have two members outside of a respiratory protection area in a fire emergency. See Tr. at 1666. While this commitment resolves this specific point, there remains the related question of whether the overall staffing plan is adequate, which we discuss under section IV.E.4 below.

2. Protective Clothing and Equipment

4.66 The State also declares that PFS has failed to comply with subchapter 5-3 of NFPA 600 because SCBA and other protective gear will be stored in the SHPB, which (1) would delay response time for a fire in the CTB; and (2) could place brigade members in danger by causing them to risk responding to a CTB fire without their gear. See State Findings at 15-16. We do not agree. Putting aside the fact that subchapter 5.3 of NFPA 600 does not specify where equipment should be stored and that the State has not made any alternative suggestion regarding a better location for the equipment, the State's first concern about delay is misplaced given the PFS showing, as outlined in section IV.D above, that onsite fire brigade reaction is not necessary to avert fire-related radiological impacts.

4.67 Likewise, the State's second concern is not persuasive given the precept that, in the absence of evidence to the contrary, we will not presume that an applicant or licensee, and those who work for them, will not adhere to applicable regulations or standards. See General Public Utilities Corp. (Oyster Creek Nuclear Generating Station), LBP-96-23, 44 NRC 143, 164 (1996). In this instance, paragraph 2-2.4 and subchapters 4-3 and 5-3 of NFPA 600 establish certain guidelines as to when it is appropriate for a fire brigade member to enter warm or hot zones in a fire emergency or otherwise engage in firefighting activities. See NFPA 600, at 600-8, -10 to -11. Moreover, paragraph 2-2.1.6 of NFPA 600 mandates:

The incident management system shall ensure that the risk to members is evaluated prior to taking action. In situations where the risk to industrial fire brigade members is unacceptable, the emergency response activities shall be limited to defensive operations.

Regardless of the risk, actions shall not exceed the scope of the organizational statement and standard operating procedures.

NFPA 600, at 600-7. In this instance, in the absence of any evidence suggesting that PFS workers will ignore such standards (or will not be properly trained to follow such standards), the

PFS commitment to comply with NFPA 600 standards, see Dungan/Lewis Testimony at 26, essentially answers the State's concern that equipment storage in the SHPB will endanger PFS workers.

3. PFS Organizational Statement and Training Requirements

4.68 Citing paragraphs 1-4.1 and 2-1.2.1 of NFPA 600, the State also argues that the PFS plan for training its fire brigade members is inadequate because PFS has provided only sketchy details about the type, amount, and frequency of training; the limits of the fire brigade's actions and responsibility; and the workplace duties the members of the fire brigade are to perform. See State Findings at 16. PFS, however, has indicated that all fire brigade members may, as members of its Instrument/Electrical Maintenance, Mechanical Maintenance/Operations, and Radiation Protection departments, be involved in cask transfer operations and has committed to complying with NFPA 600 standards for organizing, operating, equipping, and training its fire brigade employees. See Dungan/Lewis Testimony at 27; Tr. at 1511; PFS Exh. G at 4-3. This training will include, among other things, training on the types and dangers of fires, protective clothing, SCBA use, fire truck operation, and fighting fires involving radioactive materials. See State Exh. 4, at 1 of 2; PFS Exh. G at 6-2 (PFS Emergency Plan, Chapter 6 (rev. 9)). Moreover, this training will be in combination with a general employee training program intended to provide all employees at the facility with basic firefighting knowledge and skills, including fire reporting requirements, the types of fires, and the use of manual fire extinguishers. See Tr. at 1512; PFS Exh. G at 9.3-3 (PFS SAR Chapter 9 (rev. 13)). PFS also declared it will comply with NFPA 600 standards that require fire brigade members to have quarterly educational training, a semi-annual drill, and live fire exercises at least annually. See Tr. at 1511; see also NFPA 600 subch. 4-2, at 600-10. In conformity with the well-established precept that emergency planning implementing

procedures -- the how-to and what-to-do details of the plan -- should not become the focus of the adjudicatory process, Louisiana Power and Light Co. (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1106-07 (1983), see also The Curators of the University of Missouri, CLI-95-1, 41 NRC at 140-42 (asserted failure of emergency plan to identify response team individuals' responsibilities and describe firefighting training seeks unnecessary level of detail), this PFS showing is sufficient to establish the adequacy of PFS emergency planning efforts relative to these State concerns.

4. PFS Staffing

4.69 In addition to its arguments about lack of compliance with specific NFPA 600 standards, the State alleges that the PFS emergency plan is deficient because there are not enough individuals to perform all of the duties that NFPA 600 requires for compliance with its dictates. Citing the stated PFS intention to train eleven of its planned twenty-four nonsecurity personnel to serve as needed on its five-person fire brigade, the State declares this is not adequate because it would leave PFS short-staffed with too few people doing too many things. According to the State, PFS will need one fire person to drive the onsite fire truck to the fire, a second fire fighter to retrieve the second fire truck from the Skull Valley Band village on the reservation, two fire fighters to man the hoses and pumps on these fire trucks, an incident commander, and two backup firefighters for the respiratory protection area/hot zone. See State Findings at 16-18.

4.70 PFS has stated that there will be eleven individuals trained to be fire brigade members, with five members on call at any one time to form a fire brigade. See Tr. at 1525. Assuming that only five individuals are available, however, this nonetheless is sufficient to provide adequate fire brigade coverage.

4.71 As described previously, the measures taken by PFS to prevent and minimize the impact of fires as sources of radiological release suggest that the role of the PFS fire brigade will be limited to extinguishing fires too small to actuate the automatic foam/water sprinkler system, provide support to ensure fire pumps are running, personnel are evacuated properly, and utilities (e.g., power and fuel) are disconnected. And in the event of an outside fire, the brigade's role is likely to involve only burn control to limit fire exposures or vehicle fire suppression in the event it cannot be handled by the operator. See Dungan/Lewis Testimony at 26.

4.72 PFS further maintains that the onsite and the Skull Valley Band reservation fire trucks are not mandated by regulatory requirements nor will they be needed (other than perhaps as providing backup pressure for the main fire pumps or to bring additional hose or equipment to the fire site) given the availability of the foam/sprinkler system and the hydrant/standpipe system. See id. at 27; Tr. at 1505-06, 1534. Nonetheless, assuming that a fire truck response is needed, the State has overstated the number of fire truck drivers needed given that the Skull Valley Band reservation truck is intended to be a backup, see Tr. at 1505, and at least four (and possibly all) of the eleven fire brigade members will be able to do double duty as driver and operator of a fire truck, see Tr. at 1496-97, 1525. Moreover, even if the onsite or Skull Valley Band fire trucks are needed, other PFS non-fire brigade personnel trained in the operation of heavy haul machinery could retrieve the trucks and fire brigade members, other than the five "on call" brigade members designated to respond to a fire, could retrieve and operate the trucks, if necessary. See Tr. at 1525-26.

4.73 Furthermore, as was noted above, PFS has stated it will comply with paragraph 5-3.5 of NFPA 600 in that two men will remain outside of the respiratory protection area/hot zone as a rescue crew for the crew of two who enter the zone. One of these two

backup men can also function as the brigade commander responsible for assessing the location, function, and time of entry into the respiratory protection area/hot zone of the other two brigade members. See Tr. at 1506-07, 1639-40; see also NFPA 600 ¶ 5-3.5, at 600-11. Thus, utilizing a five-person brigade, with one member as the fire truck driver/operator and two members as the backup crew, this still leaves two individuals who, as a team, could use the SCBA to go into the CTB and perform rescue operations or manually extinguish fires using either the hydrant/standpipe system or the truck hose.

4.74 Of course, this analysis does not include the other six trained fire brigade members who are possibly onsite and could aid the five brigade members designated to respond in the first instance. And there is no credible evidence that the fact that any of the fire brigade members will have other duties at the facility would impair his or her ability to provide a timely response to a fire emergency. See Tr. at 1526-27; see also 1565-66.

F. PFS Water Supply

4.75 The State also claims the PFS emergency plan is deficient because there is merely an assumption that there will be an adequate source of water to fill and replenish the two 100,000-gallon tanks that will supply the sprinkler system and other manual methods for extinguishing fires. See State Response at 6-7. Relative to its water supply, PFS has stated that it will follow the guidelines set forth in NFPA 13, which sets standards for primary water tank capacity needed to fight the largest fixed fire based on suppression system demand and hose stream allowances, and NFPA 801, which sets an eight-hour water tank refill time limit. See Lain/Sullivan Testimony at 13. This PFS agreement to comply with the standards carries with it the commitment to obtain enough water timely to fill and refill the tanks, no matter where the water originates from. PFS has stated that it will acquire water by drilling wells onsite or from some other offsite source, such as the existing water supply of the Skull Valley Band

reservation, see Tr. at 1485-86, which the staff concludes shows that PFS will have an adequate water supply for fire fighting, see Lain/Sullivan Testimony at 13.⁶ We agree and, contrary to the State's assertion, find that questions about the authority of PFS to drills wells on the Skull Valley Band reservation without State authorization are outside of the scope of this contention. See Tr. at 1486-87.

G. License Conditions

4.76 The State also has asserted that the commitments made by PFS relative to satisfying various NFPA standards for fire protection at its proposed ISFSI facility should be codified as license conditions in accordance with the Commission's decision in CLI-00-13 and 10 C.F.R. §§ 72.32, 72.122(c). See State Response at 5-6. We do not agree, for the reasons set forth below.

4.77 Existing precedent indicates that the addition of a condition to a license, whether in the form of a technical specification or otherwise, should be a matter that a presiding officer approaches with some caution. For instance, relative to technical specification conditions for power reactor licenses, the Appeal Board observed:

technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety.

Portland General Electric Co. (Trojan Nuclear Plant), ALAB-531, 9 NRC 263, 273 (1979)

(footnote omitted). While this suggests that the threshold for imposing a technical license condition is not insignificant, in other contexts, in particular financial qualifications matters,

⁶ Although PFS and the staff put forth different figures for the amount of water that was necessary to fulfill the NFPA 13 standard -- 63,000 and 94,000 gallons, respectively -- they were in agreement that the provision for two 100,000-gallon tanks was adequate to meet that guideline. Compare Dungan/Lewis Testimony at 28 with Tr. at 1575.

Commission rulings like CLI-00-13 indicate that the threshold may be somewhat lower. See CLI-00-13, 52 NRC at 32 (adopting as ISFSI license conditions PFS financial qualification commitments made during the licensing process); Louisiana Energy Services, L.P. (Claiborne Enrichment Center), CLI-97-15, 46 NRC 294, 308-09 (1997) (adopting as enrichment facility license conditions financial qualification commitments made in applicant pleadings).

4.78 In the context of emergency planning relating to fire protection matters, in its decision in The Curators of the University of Missouri, CLI-95-1, 41 NRC at 158-63, the Commission indicated that presiding officer-imposed license conditions may, in fact, be appropriate, albeit emphasizing that fire safety conditions must be directed to hazards associated with nuclear materials. The conditions at issue were intended to address a particular situation that required a specific remedy. Moreover, in the one instance in which compliance with NFPA standards was required, regarding a sprinkler system, there apparently was no applicant commitment to follow those standards.

4.79 In this instance, the conditions at issue are statements that PFS has made in the course of its proposed findings, generally referencing either the direct testimony of PFS witnesses Mr. Dungan and Mr. Lewis or its application, indicating that relative to PFS facility design, construction, organization, equipment installation/maintenance, staffing, and training, PFS will comply with various NFPA standards, including NFPA 14, NFPA 16, NFPA 24, NFPA 25, NFPA 54, NFPA 58, NFPA 72, NFPA 600, and NFPA 801. Because these finding statements, which are based on PFS statements by witnesses under oath before the Board or as part of its application, indicate a willingness to comply with all or a portion of specific, nationally-recognized consensus standards, we think little purpose would be served in repeating the terms of these commitments as license conditions (or as Board directives, see Commonwealth Edison Co. (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 423-24

(1980) (although matters are not worthy of technical specification, Board will incorporate commitments in its order to make them formally enforceable)). The penalties that flow from making false statements to the Board and the staff, including the possibility of criminal violations under 18 U.S.C. § 1001 and agency enforcement actions, appear sufficient in this instance to ensure compliance without the additional step of incorporating into this decision a list of commitments that PFS has clearly acknowledged it accepts and will fulfill.⁷ See Florida Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 3 and 4), ALAB-898, 28 NRC 36, 41 n.20 (1988) (no need to incorporate applicant commitment into order given potential staff enforcement).

V. Summary Findings of Fact and Conclusions of Law

5.1 Having considered all of the evidence submitted by the parties in this proceeding relative to the State's contention Utah R, Emergency Plan, including the proposed findings of fact and conclusions of law submitted by the parties, based on the findings and conclusions set forth in section IV above, the Board finds that PFS has met its burden to establish that its emergency plan provides reasonable assurance that, in the event of a fire at the PFS facility, the public health and safety will be protected. In this regard, the Board finds that the PFS emergency plan meets the applicable regulatory criteria in that it adequately describes the types of radioactive materials accidents that may involve a fire emergency and the means and equipment to be used to mitigate such accidents as well as establishes that PFS has adequate support capability (including water supply and firefighting personnel) for use in fighting fires

⁷ The adoption in this Board issuance of license conditions incorporating the PFS commitments outlined by the State may seem to be no more than a ministerial precaution. Nonetheless, repeated commitment incorporation may have the long-term impact of causing applicants to underestimate the gravity of making (or failing to uphold) such commitments to the Board and/or the staff regardless of their adoption as "license conditions" or a Board directive.

onsite. Therefore, relative to the issues raised in contention Utah R, in accordance with 10 C.F.R. §§ 72.24(k), 72.40(a)(11), we find that PFS has provided an adequate description of its plans for coping with emergencies involving fires in compliance with 10 C.F.R. § 72.32(a) and thus contention Utah R is resolved in favor of PFS.

6.1 Pursuant to 10 C.F.R. § 2.760, it is this twenty-ninth day of December 2000, ORDERED, that this first partial initial decision will constitute a final decision of the Commission forty (40) days from the date of issuance, or on Wednesday, February 7, 2001, unless a petition for review is filed in accordance with 10 C.F.R. § 2.786, or the Commission directs otherwise. Any party wishing to file a petition for review on the grounds specified in 10 C.F.R. § 2.786(b)(4) must do so within fifteen (15) days after service of this first partial initial decision. The filing of a petition for review is mandatory in order for a party to have exhausted its administrative remedies before seeking judicial review. Within ten (10) days after service of a petition for review, parties to this proceeding may file an answer supporting or opposing

Commission review. Any petition for review and any answer shall conform to the requirements of 10 C.F.R. § 2.786(b)(2)-(3).

THE ATOMIC SAFETY AND
LICENSING BOARD⁸

/RA/

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ADMINISTRATIVE JUDGE

/RA/

Dr. Jerry R. Kline
ADMINISTRATIVE JUDGE

/RA/

Dr. Peter S. Lam
ADMINISTRATIVE JUDGE

Rockville, Maryland

December 29, 2000

⁸ Copies of this first partial initial decision were sent this date by Internet e-mail transmission to counsel for (1) applicant PFS; (2) intervenors Skull Valley Band, Ohngo Gaudadeh Devia, Confederated Tribes of the Goshute Reservation, Southern Utah Wilderness Alliance, and the State; and (3) the staff.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing FIRST PARTIAL INITIAL DECISION (CONTENTION UTAH R, EMERGENCY PLAN) (LBP-00-35) have been served upon the following persons by deposit in the U.S. mail, first class, or through NRC internal distribution.

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Docket No. 72-22-ISFSI
FIRST PARTIAL INITIAL DECISION
(CONTENTION UTAH R, EMERGENCY PLAN)
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Office of the Secretary of the Commission

Dated at Rockville, Maryland,
this 29th day of December 2000