

June 22, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
ENTERGY NUCLEAR OPERATIONS, INC.)	Docket No. 50-293
)	
(Pilgrim Nuclear Power Station))	ASLBP No. 05-842-03-LR

NRC STAFF ANSWER OPPOSING
MASSACHUSETTS ATTORNEY GENERAL'S
REQUEST FOR HEARING AND PETITION FOR LEAVE TO INTERVENE
AND PETITION FOR BACKFIT ORDER

INTRODUCTION

Pursuant to 10 C.F.R. § 2.309(h)(1), the U.S. Nuclear Regulatory Commission Staff (Staff) hereby answers the request for hearing, petition for intervention and petition for backfit, filed by the Attorney General of the Commonwealth of Massachusetts (MassAG or Petitioner) on May 26, 2006.¹ As set forth below, although the MassAG has shown standing to intervene in this proceeding, he has not proffered an admissible contention. Thus, the Petition should be denied. In addition, the Petition for Backfit Order should be dismissed.

BACKGROUND

By letter dated January 25, 2006, Entergy Nuclear Operations, Inc. (Entergy or Applicant) submitted an application for renewal of Operating License No. DPR-35

¹ See, Massachusetts Attorney General's Request for a Hearing and Petition For Leave to Intervene with Respect to Entergy Nuclear Operations, Inc.'s Application for Renewal of the Pilgrim Nuclear Power Plant Operating License and Petition for Backfit Order Requiring New Design Features to Protect Against Spent Fuel Pool Accidents (Petition), May 26, 2006.

for the Pilgrim Nuclear Power Station (Pilgrim) for an additional 20 years.² The current operating license for Pilgrim expires June 8, 2012.

On March 27, 2006, the NRC published a notice of acceptance for docketing and opportunity for hearing regarding the license renewal application.³ In response to this notice, the MassAG filed a timely intervention Petition. The Staff hereby responds in opposition to the MassAG's Petition.

A. REQUEST FOR HEARING AND PETITION FOR INTERVENTION

DISCUSSION

1. Petitioners' Standing

a. Legal Requirements for Standing

Any person who requests a hearing or seeks to intervene in a Commission proceeding must demonstrate that he or she has standing to do so. Section 189a.(1)(A) of the Atomic Energy Act of 1954, as amended ("AEA" or "Act"), 42 U.S.C. § 2239(a)(1)(A), states:

In any proceeding under this Act, for the granting, suspending, or amending of any license . . . , the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding.

The Commission's regulations in 10 C.F.R. § 2.309(d)(2) provide that a State seeking to participate as a party in a proceeding must submit a request for hearing/petition to intervene that complies with the requirements of 10 C.F.R. § 2.309, including the contention requirements, but need not address standing to intervene in a proceeding for a facility located in that state. 10 C.F.R. § 2.309(d)(2).

² See Letter from Michael A. Balduzzi, Entergy Nuclear Operations, Inc., to U.S. NRC, Re: License Renewal Application, (Jan. 25, 2006).

³ See Pilgrim Nuclear Power Station; Notice of Acceptance for Docketing of the Application and Notice of Opportunity for Hearing Regarding Renewal of Facility Operating License No. DPR-35 for an Additional 20-Year Period, 71 Fed. Reg. 15,222 (Mar. 27, 2006).

b. Petitioner Has Demonstrated Standing to Intervene in this Proceeding.

The MassAG has alleged that he has filed his Petition on behalf of the Commonwealth of Massachusetts and is an elected representative of the Commonwealth. Petition at 1, 4-5. Pilgrim is located within the boundaries of Massachusetts. Therefore, the MassAG need not address standing to participate in this proceeding.

2. Petitioners' Proposed Contentions

Even though the MassAG has a right to participate in this matter, he still must submit at least one admissible contention in order to be admitted as a party. 10 C.F.R. § 2.309(d)(2). The MassAG has failed to submit an adequate Petition, because the contention submitted is not admissible. Therefore, the Petition should be denied.

a. Legal Standards Governing the Admission of Contentions

To gain admission to a proceeding as a party, in addition to satisfying the criteria for standing, a petitioner must submit at least one admissible contention that meets the requirements of 10 C.F.R. § 2.309(f). See 10 C.F.R. § 2.309(a). This regulation requires a petitioner to:

- (i) Provide a specific statement of law or fact to be raised or controverted;
- (ii) Provide a brief explanation of the basis for the contention;
- (iii) Demonstrate that the issue raised in the contention is within the scope of the proceeding;
- (iv) Demonstrate that the issue raised in the contention is material to the findings the NRC must make to support the action that is involved in the proceeding;
- (v) Provide a concise statement of the alleged facts or expert opinions which support the requestor's/petitioner's position on the issue and on which the petitioner intends to rely at hearing, together with references to the specific sources and documents on which the requestor/petitioner intends to rely to support its position on the issue; and

- (vi) Provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact. This information must include references to specific portions of the application (including the applicant's environmental report and safety report) that the petitioner disputes and the supporting reasons for each dispute, or, if the petitioner believes that the application fails to contain information on a relevant matter as required by law, the identification of each failure and the supporting reasons for the petitioner's belief.

10 C.F.R. § 2.309(f)(1). The Commission has emphasized that its rules on contention admissibility are "strict by design." *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), CLI-01-24, 54 NRC 349, 358 (2001). Failure to comply with any of these requirements is grounds for dismissing a contention. *See Private Fuel Storage* (Independent Spent Fuel Storage Installation) (*PFS*), CLI-99-10, 49 NRC 318, 325 (1999).

The contentions should refer to the specific documents or other sources of which the petitioner is aware and upon which he or she intends to rely in establishing the validity of the contentions. *Millstone*, CLI-01-24, 54 NRC at 358 (citing *Oconee*, CLI-99-11, 49 NRC at 333). Contention admissibility requirements "demand a level of discipline and preparedness on the part of petitioners, 'who must examine the publicly available material and set forth their claims and the support for their claims at the outset.'" *Louisiana Energy Services* (National Enrichment Facility) (*LES*), CLI-04-25, 60 NRC 223, 224-225 (2004). A petitioner must also submit more than "bald or conclusory allegation[s]" of a dispute with the applicant. *Id.*

Properly formatted contentions "must focus on the license application in question, challenging either specific portions of or alleged omissions from the application (including the SAR and ER)." [*LES*] (National Enrichment Facility), LBP-04-14, 60 NRC 40, 57 (2004); *aff'd* CLI-04-25, 60 NRC 223 (2004). *See* 10 C.F.R. § 2.309(f)(1)(vi). Additionally, "Any contention

that fails directly to controvert the application or that mistakenly asserts the application does not address a relevant issue can be dismissed.” *LES*, LBP-04-14, 60 NRC at 57.

A petitioner must also “present the factual information and expert opinions necessary to support its contention adequately” and failure to provide such an explanation regarding the basis of a proffered contention requires the contention to be rejected. *Id.* In this regard, “neither mere speculation nor bare assertions alleging that a matter should be considered will suffice to allow the admission of a proffered contention.” *Id.* at 55. Nor can a Licensing Board “make assumptions of fact that favor the petitioner.” *Id.* at 56. Finally, “With limited exception, no rule or regulation of the Commission can be challenged in an adjudicatory proceeding.” *Id.* at 54; See 10 C.F.R. § 2.335.

3. The Scope of the License Renewal Proceeding.

The scope of a license renewal proceeding is limited, in both the safety and environmental contexts. Review of safety issues is limited to “a review of the plant structures and components that will require an *aging* management review for the period of extended operation and the plant’s systems, structures and components that are subject to an evaluation of time-limited *aging* analyses.” *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 & 2; Catawba Nuclear Station, Units 1 & 2), CLI-02-26, 56 NRC 358, 363-64 (2002) (citations omitted) (emphasis in original). See also *Dominion Nuclear Conn., Inc.* (Millstone Nuclear Power Station, Units 2 & 3), LBP-04-15, 60 NRC 81, 90 (2004), *aff’d*, CLI-04-36, 60 NRC 631 (2004); *Baltimore Gas & Elec. Co.* (Calvert Cliffs Nuclear Power Plant, Units 1 & 2), CLI-98-14, 48 NRC 39, 41 (1998); 10 C.F.R. §§ 54.4, 54.21(a) and (c).

The scope of the environmental review is limited in accordance with 10 C.F.R. §§ 51.71(d) and 51.95(c). Consideration of environmental issues in the context of license renewal proceedings is specifically limited by 10 C.F.R. Part 51 and by the NRC’s

“Generic Environmental Impact Statement (GEIS) for License Renewal of Nuclear Plants” (NUREG-1437) (“GEIS”). See *Florida Power & Light Co. (Turkey Point Nuclear Generating Plant, Units 2 and 3) (Turkey Point)*, CLI-01-17, 54 NRC 3, 11-13 (2001). A number of environmental issues potentially relevant to license renewal are classified in 10 C.F.R. Part 51, Subpart A, Appendix B as “Category 1” issues, which means that “the Commission resolved the[se] issues generically for all plants and those issues are not subject to further evaluation in any license renewal proceeding.” *Turkey Point*, LBP-01-06, 53 NRC at 152-53, *aff’d*, CLI-01-17, 54 NRC 3. The remaining issues in Appendix B, designated as “Category 2,” must be addressed by the Applicant in its environmental report, and in the NRC’s supplemental environmental impact statement for the facility at issue pursuant to 10 C.F.R. §§ 51.71(d), 51.53(c) and 51.95(c). *Id.*

b. Petitioner Has Not Proffered a Valid Contention.

For the reasons set forth below, Petitioner’s proffered contention is not admissible.

Petitioners’ Proposed Contention:

The Pilgrim ER does not satisfy the requirements of 10 C.F.R. § 51.53(c)(3)(iv) and NEPA, 42 U.S.C. § 4332 *et seq.*, because it fails to address new and significant information regarding the reasonably foreseeable potential for a severe accident involving nuclear fuel stored in high-density storage racks in the Pilgrim fuel pool. Although an NRC-sponsored study conducted as early as 1979 raised the potential for a severe accident in a high-density fuel storage pool if water is partially lost from the pool (NUREG/CR-0649, *Spent Fuel Heatup Following Loss of Water During Storage* (March 1979) (“1979 Sandia Report”)), the NRC has failed to take the risk into account in every EIS it has prepared, including the 1979 GEIS on the environmental impacts of fuel storage; the 1990 Waste Confidence rulemaking (Review and Final Revision of Waste Confidence Decision, 55 Fed. Reg. 38,474, 38,481 (September 18, 1990) (“1990 Waste Confidence Rulemaking”)); and the 1996 License Renewal GEIS on which the Pilgrim license renewal application relies. Moreover, the environmental impacts of a pool accident were not considered in the 1972 EIS issued in support of the original operating license for the Pilgrim nuclear power plant (Final Environmental Statement

Related to Operation of Pilgrim Nuclear Power Station, Boston Edison Company, Docket No. 50-293 (May 1972) ("1972 Pilgrim EIS").

Significant new information now firmly establishes that (a) if the water level in a fuel storage pool drops to the point where the tops of the fuel assemblies are uncovered, the fuel will burn, (b) the fuel will burn regardless of its age, (c) the fire will propagate to other assemblies in the pool, and (c) [sic] the fire may be catastrophic. See Thompson Report and Beyea Report. This new information has also been confirmed by the NRC Staff in NUREG-1738, *Final Technical Study of Spent Fuel Pool Accident Risk and Decommissioning Nuclear Power Plants* (January 2001) ("NUREG-1738"), and by the National Academies of Sciences. See NAS Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage, *Safety and Security of Commercial Spent Nuclear Fuel Storage* at 53-54 (The National Academies Press: 2006) ("NAS Report").

Moreover, significant new information, including the attacks of September 11, 2001 and the NRC's response to those attacks, shows that the environmental impacts of intentional destructive acts against the Pilgrim fuel pool are reasonably foreseeable. Taken together, the potential for severe pool accidents caused by intentional malicious acts and by equipment failures and natural disasters such as earthquakes is not only reasonably foreseeable, but is likely enough to qualify as a "design-basis accident," *i.e.*, an accident that must be designed against under NRC safety regulations. Thompson Report, §§ 6,7,9.

The ER also fails to satisfy 10 C.F.R. § 52.53(c)(3)(iii) because it does not consider reasonable alternatives for avoiding or reducing the environmental impacts of a severe spent fuel accident, *i.e.*, SAMAs. Alternatives that should be considered include re-racking the fuel pool with low-density fuel storage racks and transferring a portion of the fuel to dry storage.

Petition at 21-23. As basis for the contention, the Petitioner states that "new and significant information must be considered in a supplemental Environmental Impact Statement (EIS) because it shows that the impact of an accident in a high-density spent fuel pool (SFP) at Pilgrim would be significantly different than the impacts presented in prior EISs." Petition at 23. The Petition alleges that the contention meets the standard in *Harris* for pleading an admissible contention seeking consideration of a severe accident in an EIS. *Id.*

Staff Response to the Proposed Contention :

The proposed contention is inadmissible because it is outside the scope of license renewal proceedings, is immaterial, and fails to establish that a genuine dispute exists on a material issue of law or fact. See 10 C.F.R. § 2.309(f)(1)(i)-(vi) and (f)(2). It also is not supported by credible facts and opinion. It, thus fails to meet the Commission's pleading requirements articulated in 10 C.F.R. § 2.309.

The Contention is Outside the Scope of this Proceeding

This contention is inadmissible. It is outside the scope of this proceeding. Pursuant to 10 C.F.R. § 51.53(c)(2), the Applicant is not required to provide information regarding the storage and disposal of spent fuel. The issue of the admissibility of contentions concerning SFP accidents in license renewal proceedings was settled by the Commission in *Turkey Point*. See *Turkey Point*, CLI-01-17, 54 NRC 3. In that case, the Petitioner proffered a contention that concerned the risk of severe accidents involving spent fuel caused by aircraft crashes or hurricanes. *Id.* at 6. The contention also raised issues arising from NUREG-1738, the Staff's 2001 study of SFP accident risk at decommissioning reactors⁴ and argued that this SFP issue was a Category 2 issue under 10 C.F.R. Part 51, Appendix B. See *Turkey Point*, LBP-01-06, 53 NRC at 164-65. The Licensing Board held that portion of the contention inadmissible because the issue of onsite spent fuel storage is a Category 1 issue that "cannot be examined further in a license renewal proceeding," and is further barred by the Commission's Waste Confidence Rule. *Id.* at 165. On appeal, the Commission affirmed the Board's decision for the reasons given by the Board. *Turkey Point*, CLI-01-17, 54 NRC at 6.

⁴ NUREG-1738, Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants, (Feb. 2001).

The Commission went on to hold that:

The GEIS's finding encompasses spent fuel accident risks and their mitigation, See GEIS, at xlvi, 6-72 to 6-76, 6-86, 6-92. The NRC has spent years studying in great detail the risks and consequences of potential spent fuel pool accidents, and the GEIS analysis is rooted in these earlier studies. NRC studies and the agency's operational experience support the conclusion that onsite reactor spent fuel storage, which has continued for decades, presents no undue risk to public health and safety. Because the GEIS analysis of onsite spent fuel storage encompasses the risk of accidents, [the] Contention . . . falls beyond the scope of individual license renewal proceedings.

Id. at 21. The Contention is, thus, outside the scope of this proceeding and is, therefore, inadmissible.

To the extent that the Contention insists that the ER should address SAMAs relating to the mitigation of accidents in the SFP, (Petition at 23), that matter was also decided in *Turkey Point*. Regarding the admissibility of SFP SAMA contentions, the Commission held:

Part 51 does provide that "alternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives." See Appendix B to Subpart A of Part 51; see *also* GEIS at 5-106 to 5-116. . . . Part 51's reference to "severe accident mitigation alternatives" applies to nuclear reactor accidents, not spent fuel storage accidents. . . . As we have seen, the GEIS deals with spent fuel storage risks (including accidents) generically, and concludes that "regulatory requirements already in place provide adequate mitigation." GEIS at 6-86, 6-92, xlvi; see *also id.* at 6-72 to 6-76.

On the issue of onsite fuel storage, then, the GEIS rejects the need for further consideration of mitigation alternatives at the license renewal stage. *Id.* Indeed, for all issues designated as Category 1, the Commission has concluded that additional site-specific mitigation alternatives are unlikely to be beneficial and need not be considered for license renewal, See 61 Fed. Reg. at 28,484; GEIS at 1-5, 1-9.

Turkey Point, CLI-01-17, 54 NRC at 21-22. Part 51 treats *all* SFP accidents as Category 1.

Id. at 22. "All [onsite spent fuel storage] issues, including accident risk, fall outside the scope of license renewal proceedings." *Id.* at 23.

The Spent Fuel Pool Accident is Not a Design Basis Accident

Petitioner argues that the accident scenarios set forth in his petition meet the criteria for design-basis accidents (DBAs). Petition at 6-8, 32. The problem is that the criterion cited by Petitioner is wrong. Petitioner states that: "In determining which types of accidents constitute design-basis accidents and therefore must be protected against in a nuclear plant's design, the NRC sets a 'threshold' based on probability of the accident." *Id.* at 7. That is incorrect.

The set of accidents that must be addressed as part of the design-basis have historically evolved from deterministic rather than probabilistic considerations. *See, e.g.* SECY-77-439, Re: Single Failure Criterion (Aug. 17, 1977); 10 C.F.R. Part 50, Appendix A. These include defense-in-depth, redundancy and diversity, and are characterized by the use of the single failure criterion. The single failure criterion is codified in 10 C.F.R. Part 50, Appendices A and K. Accordingly, the SFP and related systems have been designed and approved in accordance with this deterministic approach.

In any event, the issue of whether the accident is a DBA not related to license renewal and is, therefore, outside the scope of license renewal.

An Adjudicatory Proceeding is Not the Appropriate Forum for Addressing Changes to the Commission's Regulations

In asking this Board to address a spent fuel storage issue, the Petitioner is seeking to have the Board treat the SFP issue as a Category 2 issue. But, the Commission's regulations and precedent require any request to change the categorization of an issue under Appendix B from 1 to 2 be brought before the Commission via a petition for rulemaking or a waiver request. *See, e.g., Turkey Point*, CLI-01-17, 54 NRC at 12, *citing* Final Rule, Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, 61 Fed. Reg 28,467, 28,470 (1996). *See also* 10 C.F.R. § 2.335.

As the Commission stated in *Turkey Point*:

The Commission recognizes that even generic findings sometimes need revisiting in particular contexts. Our rules thus provide a number of opportunities for individuals to alert the Commission to new and significant information that might render a generic finding invalid, either with respect to all nuclear power plants or for one plant in particular. In the hearing process, for example, petitioners with new information showing that a generic rule would not serve its purpose at a particular plant may seek a waiver of the rule. See 10 C.F.R. § 2.758 [now 10 C.F.R. § 2.335] Petitioners with evidence that a generic finding is incorrect for all plants may petition the Commission to initiate a fresh rulemaking. See 10 C.F.R. § 2.802. Such petitioners may also use the SEIS notice-and-comment process to ask the NRC to forgo use of the suspect generic finding and to suspend license renewal proceedings, pending a rulemaking or updating of the GEIS. See 61 Fed. Reg. at 28,470; GEIS at 1-10 to 1-11.

Turkey Point, CLI-01-17, 54 NRC at 12. The Contention amounts to a request to change the regulation or to ignore it. The request for rule change should be made pursuant to 10 C.F.R. § 2.802. The request that the Board ignore the Commission's regulations is a direct attack on the regulations and can not be the basis for a contention. See *e.g.* 10 C.F.R. § 2.335.

The Contention Impermissibly Challenges Commission Regulations

The regulations prohibit attacks on Commission rules and regulations or any portion thereof in adjudicatory proceedings. 10 C.F.R. § 2.335(a). The exception to this rule, that a party may petition for a waiver of the regulation for a particular proceeding on the ground that "special circumstances with respect to the subject matter of the particular proceeding are such that the application of the rule or regulation . . . would not serve the purpose for which the rule was adopted" requires that a petition be filed, accompanied by an affidavit stating the special circumstances. *Id.* at (b). If the Licensing Board determines that the petitioner has made a *prima facie* showing, the matter must be certified to the Commission for decision. *Id.* Thus, a proceeding will be subject to the applicable rules and regulations unless a petition for waiver is filed and granted. The Petitioner has not complied with the requirements of 10 C.F.R. § 2.335. Petitioner's proposed contention challenges the GEIS's consideration of spent fuel issues, but

he has not offered any special circumstances demonstrating that the relevant GEIS findings do not apply to Pilgrim. Therefore, he cannot be heard to object to the applicability of the Commission's rules and regulations.

In his brief, the Petitioner argues that even though 10 C.F.R. § 2.335 prevents him from challenging NRC regulations, he may challenge "factual determinations codified in NRC NEPA regulations . . . under regulations and judicial precedents requiring the consideration of significant new information that undermines those determinations." Petition at 17. Petitioner does not cite any valid authority for this proposition. He refers to 10 C.F.R. § 51.53(c)(3)(iv), which states that "[t]he environmental report must contain any new and significant information regarding the environmental impacts of license renewal of which applicant is aware," as well as some case law, as support for this proposition. See Petition at 10-11, 17. While the regulation requires new and significant information to be included in the ER, neither the regulation nor the cases invite a party to attack "factual determinations" codified in the regulations. Petitioner's position is contrary to the Commission's ruling in *Turkey Point*. See *Turkey Point*, CLI-01-17, 54 NRC at 12.

There is no New and Significant Information Regarding the Storage of Spent Fuel on Site

The Petitioner states that the requirement in 10 C.F.R. § 51.53(c)(iv) that the environmental report "contain any new and significant information regarding the environmental impacts of license renewal" mandates that the Applicant address SFP accidents based on alleged "new and significant" information regarding an increase in the risk of a SFP fire at Pilgrim. Petition at 1 ("The new information not addressed in any previous EIS demonstrates that continued storage of spent fuel in high-density storage racks in the Pilgrim pool poses a significant and reasonably foreseeable environmental risk of a severe fire and offsite release."),

24-37. In fact, as discussed below, this information is not new and, therefore, need not be included in the Applicant's ER.

The information regarding SFP accidents in the Petition and its supporting documents has been presented to licensing boards and the Commission, as well as to the ACRS and the Staff, in the past by various petitioners and witnesses.⁵ The argument that the information is new has been used before, using the same basic information, to licensing boards and the Commission since at least 1999, if not earlier. Since the Commission has known about this information as far back as 1979, as acknowledged by the Petitioner, and since it has been submitted to the Commission on numerous occasions and the Commission has not deemed it to be significant, it cannot, under any interpretation of the word "new", be so considered. In fact, the Staff submits that the majority, if not all of the information (other than the calculations

⁵ See, e.g., *Vermont Yankee Nuclear Power Corp.*(Vermont Yankee Nuclear Power Station), ALAB-919, 30 NRC 29 36 (1989) (Contention that EA inadequate because it did not consider a "self-sustaining fuel cladding fire" in a SFP with high density racks), *vacated and remanded*, CLI-90-04, 31 NRC 333 (1990), *dismissed* CLI-90-7, 32 NRC 129 (1990); *Pacific Gas & Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2),ALAB-880, 26 NRC 449, 456 (1987) (In proceeding for spent fuel pool reracking, petitioner raised issue of possibility of zircaloy cladding fire in the event of loss of pool cooling if high density racks in use.); *Pacific Gas & Electric Co.* (Diablo Canyon Power Plant Independent Spent Fuel Storage Installation), LBP-02-23, 56 NRC 413, 449-50, 51 (2002) (Petitioner contended that "ER should address new information showing that previous NRC environmental analysis of the risks of high density pool storage of spent fuel considerably underestimate the risk of a spent fuel pool fire." "[T]echnical studies reviewed by the NRC . . .do not consider the more severe consequences of partial pool drainage in addition to total and instantaneous pool drainage."); *Carolina Power & Light Co.*(Shearon Harris Nuclear Power Plant), LBP-00-19, 52 NRC 85 (2000) (Contention stating that an EIS was required because SFP expansion would create risks that are significantly in excess of accident risks previously evaluated and there is new information showing that there is an increase in the probability and consequences of potential SFP accidents); *Consumers Power Co.* (Big Rock Point Plant), LBP-82-8, 15 NRC 299 (1982) (Petitioner contended that if the water level in the SFP drops below the top of the fuel assembly, the fuel rods will overheat, helped by the exothermic steam/Zircaloy oxidation process and Zircaloy may also react with steam.); *Public Service Electric & Gas Co.* (Salem Nuclear Generating Station, Unit 1), LBP-80-27, 12 NRC 435, 454-55, (1980) (Testimony concerning gross loss of water in SFP, zirconium fire that could spread from freshly discharged fuel to older fuel more likely with denser storage.), *aff'd* ALAB-650, 14 NRC 34 (1981); *Commonwealth Edison Co.* (Zion Station, Units 1 and 2), LBP-80-7, 11 NRC 245, 266-67 (1980) (Intervenor contended that SFP water could boil away, uncovering the spent fuel, which would heat up rapidly and the exothermic metal-water reaction that ensued would produce large amounts of heat and hydrogen gas, which would explode, releasing radioactivity that would be much more severe than a reactor meltdown.).

that the witness asserts are site specific), has been presented before. None of it is new or, as discussed below, significant.

The Petitioner claims that the information in NUREG-1738 is new: it is not. The Commission was well aware of it at the time it decided *Turkey Point*. See *Turkey Point*, CLI-01-17, 54 NRC at 22, n.11. Nor is it significant. As pointed out by the Commission, that study, among others, “concluded that the risk of [spent fuel pool] accidents is acceptably small.”⁶ *Id.* at 22. Similarly, the 2001 Alvarez report relied upon by Petitioner is not new or significant. The Staff prepared, and the Commission approved, a response to the report in 2003, concluding that it was overly conservative and unrealistic and that spent fuel stored is safe and the measures in place to protect the public are adequate.⁷

None of the remaining information cited by Petitioner is new or significant. For example, the possibility of loss of pool water for a variety of reasons is well known, and the types of

⁶ Petitioner makes the statement that in NUREG-1738, the Staff conceded that if the water in a high density SFP is lost, even if the fuel is one year or more from discharge, the fuel will heat up to a point where the zircaloy cladding will melt and then catch fire. Petition at 62. This statement is incorrect. For purposes of offsite consequence analyses in NUREG-1738, the Staff did assume that if the water level in a fuel storage pool drops below the top of the spent fuel, a SFP fire would result (p.3-35, 3-37, and 3-38). However, this was considered a conservative assumption that bounds all sequences that could lead to fuel uncover, and uncertainties in whether these sequences would lead to a SFP fire. NUREG-1738 actually found that for fuel that has been out of the reactor for 4-5 years, air cooling is sufficient to preclude a zirconium fire (p.A1A-4), but also found that in the event that air cooling is completely obstructed and the fuel is assumed to heat adiabatically (with no heat loss to the surroundings), 5 year old fuel could reach a (the temperature at which the onset of significant fission product release is expected) after 24 hours. NUREG-1738, p.A1A-5. NUREG-1738 found that since a non-negligible decay heat source lasts many years and since configurations ensuring sufficient air flow for cooling cannot be assured, the possibility of reaching the zirconium ignition temperature could not be precluded on a generic basis (ES-x). The conservative assumption that a SFP fire would occur was made to bound these uncertainties. For purposes of offsite consequence analyses in NUREG-1738, the Staff also conservatively assumed that all of the fuel assemblies in the SFP will participate in a SFP fire, and did not credit the possibility that fewer assemblies might be involved in a SFP fire in later years because of substantially lower decay heat in the older assemblies (p.3-31). The Staff noted that based on analyses performed up to that time fire propagation is expected to be limited to less than two full cores one year after shutdown, and that the assumption that all of the stored fuel participates adds conservatism to the calculation. NUREG-1738, p.3-31.

⁷ COMSECY-03-0018, (Aug. 7, 2003) (ADAMS Accession No. ML052340740).

events cited by Petitioner were considered within previous analyses (e.g., NUREG-1738), and the likelihood of these events progressing unmitigated to a SFP fire was found to be very small.

The Staff's understanding of the frequencies and the consequences of SPF fires has not changed substantially since the potential for SFP accidents with high density racks was first explored in detail as part of Generic Issue 82. See NUREG/CR-4982, Severe Accidents in Spent Fuel Pools in Support of Generic Issue 82 (1987); NUREG-1353, Regulatory Analysis for the Resolution of Generic Issue 82, "Beyond Design-basis Accidents in Spent Fuel Pools," (1989). This is demonstrated by a review of the Staff studies summarized below (all prior to 9/11). The Sandia Report (NUREG/CR-0649) reached the conclusion that for certain conditions, the cladding of freshly discharged assemblies would reach the point of ignition. NUREG/CR-0649, Spent Fuel Heatup Following Loss of Water During Storage, (March 1979). The possibility of propagation from assembly to assembly with the involvement of the entire spent fuel pool was not ruled out.⁸

Petitioner claims that significant new information now firmly establishes that: (a) if the water level in a fuel storage pool drops to the point where the tops of the fuel assemblies are uncovered, the fuel will burn, (b) the fuel will burn regardless of its age, (c) the fire will

⁸ In his report, Dr. Thompson claims a 50% probability of a SFP fire given an "early release" from the reactor. Within his Table 6-1, Thompson presents values for both large early and medium early release frequencies from the ER. Thompson Report at 49. The ER values are based on the most recent version of the plant-specific PRA. If these values are used, the early release frequency is $1.07E-6/y$ (based on $6.8E-7/y + 3.9E-7/y$), and the fire frequency = $0.5 \times 1.07E-6/y = 5E-7/y$. *Id.* However, Thompson actually bases his non-malice fire frequency on earlier risk information taken for the IPE and IPEEEs (circa 1990), which is also included in Table 6-1. *Id.* The result (presented in his Table 9-1) is an early release frequency of $4.2E-5/y$ and a fire frequency of $2.1E-5/y$. *Id.* at 57. This is a factor of 40 higher than if he used the more recent PRA information. No basis for using the older risk information is provided. Thus, it would appear that this approach was taken in order to produce the maximum SFP fire frequency.

Thompson also claims a probability of one malicious attack per century, and that this attack will be 100% successful in producing a SFP fire. Thus, the frequency of a SFP at Pilgrim (1 of 104 reactors in the US) is: Fire frequency = $0.01 \text{ attack}/y \times 1.0 \text{ fire}/\text{attack} \times 1/104 = 1E-4/y$. But he provides no support or basis for this claim.

propagate to other assemblies in the pool, and (d) the fire will be catastrophic. This new information has also been confirmed by the NRC staff in NUREG-1738 and by the National Academies of Sciences (NAS). *Id.* at 22. But these statements provide an inaccurate characterization of the findings of both NUREG-1738 and the National Academies of Sciences. See NAS Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage, *Safety and Security of Commercial Spent Nuclear Fuel Storage*, (National Academies Press, 2006). See discussion regarding NUREG-1738 in n. 6, *supra*.

The NAS report does not firmly establish the points raised by the Petitioner. Rather than provide definitive conclusions that support the overly-simplified points made by the Petitioner, the calculations described on the referenced pages of the NAS report (NAS report, p. 53-54) indicate that: (1) the potential for heat build-up in a fuel assembly sufficient to initiate a zirconium cladding fire depends on its decay heat level (which is related to its age) and on the rate at which heat can be transferred to adjacent assemblies and to circulating air or steam, and (2) for some scenarios the fuel could be air cooled within a relatively short time after removal from the reactor, whereas in other scenarios (partial drain-down) fuel cladding might heat up sufficiently to ignite if no mitigative actions are taken. NAS Report, p. 52-54. Without these misrepresentations, the Petitioner cannot demonstrate these studies provide new and significant information.

Petitioner also asserts that there is significant new information, not previously considered by the NRC in any EIS, which shows that the impact of high-density spent fuel pool storage at Pilgrim would be significantly greater than contemplated in prior EISs. *Id.* at 23. But, again, the information cited is not new.

Petitioner cites to information that he alleges to be new in NUREG-1738, the NAS report, and the Thompson report, stating that all of these documents were written after the

issuance of the license renewal GEIS and therefore they qualify as new. But, the information provided in the referenced documents is not “new” in a technical sense. The potential for a severe accident in a high-density fuel storage pool was raised in the 1979 Sandia report (NUREG/CR-0649). Additional information regarding the frequencies and consequences of SFP fires became available subsequent to the spent fuel GEIS and prior to the license renewal GEIS (e.g., NUREG/CR-4982 and NUREG-1353). The frequency and consequence information provided in the most recent documents cited by the petitioner (NUREG-1738, the NAS report, and the Thompson report) is not substantially different than that provided in the earlier documents that were available at the time of the license renewal GEIS. See NUREG/CR-4982, Table S.1, p.77, Table 4.7, p. 74; NUREG-1353, Table 4.7.1, p.4-36, Table 4.8.2, p. 4-41; NUREG/CR-6451, A.S. Benjamin, et al, Spent Fuel Heatup Following Loss of Water During Storage, (March 1979), Table 4.2, p. 4-3. Thus, this information would not be considered new in a technical sense. In addition, the Thompson report is rife with information that has been presented in previous cases. See, e.g., *Shearon Harris*, LBP-00-19, 52 NRC 85.⁹

Petitioner states that total or partial loss of water from a SFP containing high-density racks will initiate either an air-zirconium or a steam-zirconium exothermic reaction within hours. Petition at 30. This statement implies that a SFP fire is a certainty for either total or partial loss of water, and that the time-frame for fire initiation is very short. In any event, this is argument on the merits and will not be addressed at this juncture, except to note that, as the Petitioners themselves state on page 21 of their Petition, the potential for a fire in partial drain-down scenarios was noted even in the 1979 study. Thus, this is not new information.

⁹ The attempt in the Thompson report (Thompson report at 20) to make it appear that there were only minor divergences between his analysis and the Staff’s with respect to SFP fires, inaccurately represents the Staff’s position. See *generally*, *Shearon Harris*, LBP-01-9, 53 NRC 239.

Petitioner states that once initiated, this reaction could spread to nearby, previously involved, fuel assemblies. *Id.* But the potential for propagation is not new. This also was previously identified and considered in the 1979 study and 1989 Staff evaluation (NUREG-1353). Once again, Petitioner has failed to demonstrate the existence of new and significant information.

The list of facts that are not new or significant goes on, and includes:

The Petitioner makes numerous statements and conclusions, that are allegedly supported by the Thompson report. However, the Thompson report itself makes statements and conclusions that are, in turn, totally unsupported. For example, the Petitioner has not provided any new information that would lead to a change in the SFP risk from internal or external events, and has only provided some speculative, unsubstantiated frequency estimates for security events. The petitioner alleges that the frequency of a SFP fire as a result of a reactor accident is $2E-5/y$, but there is no technical basis provided for this value, and the actual value, if one could be developed, would be much less.¹⁰

In addition to being outside the scope of this proceeding and representing an impermissible challenge to the Commission's regulations, the Petitioner's contention fails substantively, as well. Petitioner has failed to demonstrate the existence of new and significant information that would necessitate the updating of the GEIS for license renewal pursuant to 10 C.F.R. § 51.53(c)(iv). By the Petitioner's own admission, the Commission has been aware of these issues since at least 1979. See Petition at 21.

¹⁰ Petitioner and Thompson state that they are making the reasonable assumption that the conditional probability of a pool fire accompanying an early containment release is 50%, the overall estimated likelihood of a pool fire, excluding acts of malice, is on the order of $2E-5/y$. Petition at 32. But, there is no technical basis for the 50% probability value on which this conclusion is based. In addition, as discussed in n. 8, *supra.*, Thompson actually bases his non-malice fire frequency on 1990 risk information, rather than the more recent PRA information. The result is an early release frequency and a fire frequency that is a factor of 40 higher than if he used the more recent PRA information.

Terrorism Issues are Outside the Scope of This Proceeding

The Petitioner states in the proposed contention that there is significant new information, including the attacks of September 11, 2001 and the NRC's response to those attacks, that shows that the environmental impacts of intentional destructive acts against the Pilgrim fuel pool are reasonably foreseeable. Petition at 22. Petitioner notes that the 1979 GEIS addressed deliberate attacks on a SFP. *Id.* at 29-30. Petitioner then argues that accidents caused by intentional malicious acts are credible and SFPs are vulnerable to attack. *Id.* at 33-37. Petitioner further argues that the potential for intentional acts can be analyzed qualitatively, and that the reasons given in the GEIS for not addressing terrorism are invalid. *Id.* at 37-41. Finally, the Petitioner addresses the Commission's holdings in *PFS II* and *Diablo Canyon*. *Id.* at 41-47. See *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340 (2002); *Pacific Gas and Electric Co.* (Diablo Canyon ISFSI), CLI-03-12, 58 NRC 185 (2003). Yet, Petitioner ignores the only relevant precedent, in which the Commission specifically addressed the question of terrorism-related issues in license renewal proceedings: *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-26, 56 NRC 358 (2002). In that case, the Commission found that is no need to address terrorism issues in license renewal proceedings, stating that "it is sensible not to devote resources to the likely impact of terrorism during the license renewal period, but instead to concentrate on how to prevent a terrorist attack in the near term at the already licensed facilities." *McGuire*, CLI-02-26, 56 NRC at 365. In addition, the Commission affirmed that it has adequately address terrorism issues generically in the GEIS.¹¹

¹¹ "Even if we were required by law to consider terrorism under NEPA, the NRC has already issued a . . . GEIS that considers sabotage in connection with license renewal. . . . The GEIS concluded that, if such an event were to occur, the resultant core damage and radiological releases would be no

(continued...)

The Ninth Circuit has recently granted a petition for review of the Commission's decision in *Diablo Canyon*. See *San Luis Obispo Mothers for Peace, et al. v. NRC*, No. 03-74628 (June 2, 2006). The Court's decision upheld the Commission's decision on the Atomic Energy Act issues, but, as to the NEPA issues, concluded that "the NRC's determination that NEPA does not require a consideration of the environmental impact of terrorist attacks does not satisfy reasonableness review," and held that "the EA prepared in reliance on that determination is inadequate and fails to comply with NEPA's mandate." *San Luis Obispo* at 6096. The case was remanded for further proceedings. *Id.* The Court's mandate has not yet issued. By letter dated June 16, 2006, Petitioner and his counsel asked the Board to apply the Ninth Circuit's decision to the instant case.¹² The Staff submits that the decision should not be applied to this case. First, the mandate has not yet issued and the Commission has not determined what action, if any, it may take in response to the decision. Second, the Commission's statements in *McGuire*, cited above, distinguish this license renewal matter from *San Luis Obispo*. Finally, if the Board has any questions regarding whether to apply the case, especially since the case may affect several pending matters, the question should be certified to the Commission.

CONCLUSION AS TO PETITION FOR INTERVENTION

Petitioner has established standing to intervene in this proceeding, but has failed to proffer an admissible contention. The proffered contention is outside the scope of license renewal, is an impermissible challenge to the Commission's rules and regulations, seeks changes in the Commission's regulations, cites no new and significant information, and

¹¹(...continued)
worse than those expected for internally initiated events." *Duke* 56 NRC at 365, n.24 (citations omitted).

¹² The Staff questions the propriety of Petitioner's letter request. The Staff submits that any request regarding precedents and legal authorities should have been submitted to the Board in a pleading.

discusses terrorism, which is outside the scope of this proceeding. Therefore, the Licensing Board should deny the Petition.

B. PETITION FOR BACKFIT

The Petitioner filed a Petition for Backfit, asking the Commission to order the backfitting of the SFP at Pilgrim to return it to low-density storage and to use dry storage for any overflow. Petition at 48-50. Petitioner seeks a discretionary hearing on the adequacy of any design modifications imposed by the Commission. *Id.* at 50.

The Staff submits that the Petition for Backfit should be dismissed. First, it is directed to the Commission. Therefore, it is before the wrong adjudicatory body. Second, as noted by Petitioner, there is no provision in the rules for an adjudicatory hearing on a backfit issue.

Therefore, Petitioner does not have the right to petition for a backfit and the Board does not have the authority to grant such a petition.

CONCLUSION AS TO PETITION FOR BACKFIT

Based on the foregoing, the Petition for Backfit should be dismissed.

Respectfully submitted,

[Original signed by Harry E. Wedewer for]

Susan L. Uttal
Counsel for the NRC Staff

Dated at Rockville, Maryland
this 22nd day of June, 2006

June 22, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
)	Docket No. 50-293-LR
ENTERGY NUCLEAR OPERATIONS, INC.)	
)	ASLBP No. 06-848-02-LR
)	
(Pilgrim Nuclear Power Station))	

CERTIFICATE OF SERVICE

I hereby certify that copies of the "NRC STAFF ANSWER OPPOSING MASSACHUSETTS ATTORNEY GENERAL'S REQUEST FOR HEARING AND PETITION FOR LEAVE TO INTERVENE AND PETITION FOR BACKFIT ORDER" in the above-captioned proceeding have been served on the following by electronic mail and deposit in the U.S. Mail Service or by deposit in the U.S. Nuclear Regulatory Commission's internal mail system as indicated by a single asterisk(*), or by deposit in the U.S. mail system, as indicated by a double asterisk (**) this 22nd day of June, 2006.

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