LBP-11-35

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Ann Marshall Young, Chair
Dr. Paul B. Abramson
Dr. Richard F. Cole

In the Matter of:	Docket No. 50-293-LR
ENTERGY NUCLEAR GENERATION COMPANY AND ENTERGY NUCLEAR OPERATIONS, INC. (Pilgrim Nuclear Power Station)	ASLBP No. 06-848-02-LR November 28, 2011

MEMORANDUM and ORDER
(Denying Commonwealth of Massachusetts' Request for Stay, Motion for Waiver, and Request for Hearing on a New Contention Relating to Fukushima Accident)

TABLE OF CONTENTS

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In this Order, we address remaining matters before us raised by the Commonwealth of Massachusetts (Commonwealth) in the proceeding concerning the application by Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc (collectively, Entergy) for renewal of the operating license for the Pilgrim Nuclear Power Station (Pilgrim) for an additional twenty-year period beyond its current operating license expiration date of June 8, 2012.[1] These matters are: (a) a motion amounting to a request for a stay of this proceeding (Stay Request);[2] (b) a motion to admit (Motion to Admit) a new contention challenging the Entergy SAMA analysis because of asserted new information regarding both Spent Fuel Pool (SFP) accidents and severe accident probabilities based upon the events at Fukushima (Fukushima Contention);[3] (c) a request for a waiver of the provisions of our regulations providing that SFP

[1] See 71 Fed. Reg. 15,222, 15,222 (Mar. 27, 2006).

[2] Commonwealth of Massachusetts Motion to Hold Licensing Decision in Abeyance Pending Commission Decision Whether to Suspend the Pilgrim Proceeding to Review the Lessons of the Fukushima Accident (May 2, 2011) [hereinafter Stay Request].

[3] Commonwealth of Massachusetts' Motion to Admit Contention and, If Necessary, to Reopen Record Regarding New and Significant Information Revealed By Fukushima Accident (June 2,

(continuing . . .)

issues are outside the scope of a license renewal proceeding such as this (Request for Waiver);[4] and (d) a motion to supplement the bases of its proposed contention to address the NRC's Near-Term Task Force Report on lessons learned from Fukushima (Motion to Supplement).[5]

For reasons discussed below:

a. we deny the Stay Request;

b. we deny the Waiver Request;

c. we grant the Motion to Supplement, considering the information presented therewith for its value to this matter; and

d. we deny the Motion to Admit, finding the Commonwealth has failed to satisfy the requirements for reopening under 10 C.F.R. § 2.326, the standards for untimely contentions under 10 C.F.R. § 2.309(c), and the contention admissibility criteria of 10 C.F.R. § 2.309(f)(1).

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2011) [hereinafter Motion to Admit and Reopen]; Commonwealth of Massachusetts' Contention Regarding New and Significant Information Revealed by the Fukushima Radiological Accident (June 2, 2011) [hereinafter Fukushima Contention].

[4] Commonwealth of Massachusetts' Petition for Waiver of 10 C.F.R. Part 51 Subpart A, Appendix B or, in the Alternative, Petition for Rulemaking to Rescind Regulations Excluding Consideration of Spent Fuel Storage Impacts from License Renewal Environmental Review (June 2, 2011) [hereinafter Waiver Petition].

[5] Commonwealth of Massachusetts Motion to Supplement Bases to Commonwealth Contention to Address NRC Task Force Report on Lessons Learned from the Radiological Accident at Fukushima (Aug. 11, 2011) at 1-2 (citing Dr. Charles Miller et al., Recommendations for Enhancing Reactor Safety in the 21st Century, The Near-Term Task Force Review of Insight from the Fukushima Dai-Ichi Accident (July 12, 2011) (ADAMS Accession No. ML111861807) [hereinafter Near-Term Task Force Report]) [hereinafter Motion to Supplement].

I. PERTINENT BACKGROUND

Entergy's application has been opposed by Pilgrim Watch[6] and the Commonwealth.[7] We originally closed these proceedings by order issued June 4, 2008;[8] however, on March 26, 2010 the Commission reversed in part the Board majority's grant of summary disposition as to an admitted contention filed by Pilgrim Watch challenging Entergy's analysis of severe accident mitigation alternatives (SAMAs).[9] We ruled in favor of Entergy as to the remanded matter by order dated July 19, 2011 (hereinafter, our Remanded Issue Order).[10]

On May 2, 2011, while the remand was pending, the Commonwealth filed its Stay Request, requesting a stay of these proceedings until the Commission has completed its studies of, and released a related plan for action regarding, the Fukushima events.[11] On June 2, 2011, the Commonwealth submitted to us its Waiver Request[12] and simultaneously filed its Motion to Admit[13] respecting its Fukushima Contention.[14] On August 11, 2011, the Commonwealth filed its Motion to Supplement, asking to supplement its bases for its new contention based upon

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[6] Request for Hearing and Petition to Intervene by Pilgrim Watch (May 25, 2006).

[7] Massachusetts Attorney General's Request for a Hearing and Petition for Leave to Intervene wit[h] 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 (May 30, 2006).

[8] LBP-08-22, 68 NRC 590, 596 (2008); Board Memorandum and Order (Ruling on Pilgrim Watch Motions Regarding Testimony and Proposed Additional Evidence Relating to Pilgrim Watch Contention 1) (June 4, 2008) at 3-4 (unpublished).

[9] See CLI-10-11, 71 NRC __, __ (slip op. at 3) (Mar. 26, 2010).

[10] LBP-11-18, 74 NRC __, __ (slip op. at 1-2) (July 19, 2011).

[11] See Stay Request at 1.

[12] Waiver Request at 1.

[13] Motion to Admit at 1.

[14] Fukushima Contention.

information it garnered from the NRC's Near-Term Task Force Report.[15] Entergy and Staff filed answers and oppositions to these petitions and motions,[16] and the Commonwealth filed replies and motions for leave to reply.[17] Entergy and the NRC Staff filed oppositions to the

[15] Motion to Supplement at 1-2.

[16] Entergy's Answer Opposing Commonwealth's Motion to Hold Licensing Decision in Abeyance (May 12, 2011) [hereinafter Entergy Opposition to Stay Request]; NRC Staff's Answer in Opposition to Commonwealth of Massachusetts Motion to Hold Licensing Decision in Abeyance Pending Commission Decision Whether to Suspend the Pilgrim Proceeding to Review the Lessons of the Fukushima Accident (May 12, 2011) [hereinafter NRC Staff Opposition to Stay Request]; Entergy's Answer Opposing Commonwealth Contention and Petition for Waiver Regarding New and Significant Information Based on Fukushima (June 27, 2011) [hereinafter Entergy Answer to Waiver Petition and Fukushima Contention]; NRC Staff's Response to the Commonwealth of Massachusetts' Petition for Waiver of 10 C.F.R. Part 51 Subpart A, Appendix B or, in the Alternative, Petition for Rulemaking (June 27, 2011) [hereinafter NRC Staff Answer to Waiver Petition]; NRC Staff's Response to Commonwealth of Massachusetts' Motion to Admit Contention and, if Necessary, Re-Open Record Regarding New and Significant Information Revealed by Fukushima Accident (June 27, 2011) [hereinafter NRC Staff Opposition to Fukushima Contention]; Entergy's Answer Opposing Commonwealth Motion to Supplement Bases to Commonwealth Contention to Address NRC Task Force Report on Lessons Learned from Fukushima (Sept. 6, 2011); Letter from Paul A. Gaukler, Counsel for Entergy, to Office of the Secretary, NRC (Sept. 19, 2011) (explaining that Entergy refiled its answer to the Commonwealth's Motion to Supplement to correct only the caption); Entergy's Answer Opposing Commonwealth Motion to Supplement Bases to Commonwealth Contention to Address NRC Task Force Report on Lessons Learned from Fukushima (Sept. 19, 2011) [hereinafter Entergy Opposition to Motion to Supplement]; NRC Staff's Response to Commonwealth of Massachusetts' Motion to Supplement Bases to Proposed Contention to Address NRC Task Force Report on Lessons Learned from Fukushima (Sept. 6, 2011) [hereinafter NRC Staff Opposition to Motion to Supplement. The NRC Staff had moved that we extend the time for filing responses to the Commonwealth's Motion to Supplement, NRC Staff's Unopposed Motion for an Extension to September 6, 2011, to File a Response to the Commonwealth of Massachusetts' Motion (Aug. 16, 2011), and we granted its extension request, Board Order (Granting NRC Staff's Unopposed Motion for Extension) at 1-2 (Aug. 17, 2011) (unpublished).

[17] Commonwealth of Massachusetts Motion to Reply to the Answers of the NRC Staff and Entergy in Opposition to the Commonwealth of Massachusetts Motion to Hold Licensing Decision in Abeyance Pending Commission Decision Whether to Suspend the Pilgrim Proceeding to Review the Lessons of the Fukushima Accident (May 19, 2011); Commonwealth of Massachusetts Reply to NRC Staff and Entergy Oppositions to Commonwealth Motion to Hold Licensing Decision in Abeyance Pending Commission Decision Whether to Suspend the Pilgrim Proceeding to Review the Lessons of the Fukushima Accident (May 19, 2011) [hereinafter Reply for Stay Request]; Commonwealth of Massachusetts Reply to the Responses of the NRC Staff and Entergy to Commonwealth Waiver Petition and Motion to Admit Contention or in the Alternative for Rulemaking (July 5, 2011) [hereinafter Reply for Waiver Petition and Fukushima Contention]; Commonwealth of Massachusetts Reply to NRC Staff and

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Commonwealth's motion for leave to reply regarding the Stay Request,[18] and Entergy filed an opposition to the Commonwealth's motion for leave to reply regarding the Motion to Supplement.[19] Entergy moved also to strike portions of the Commonwealth's reply regarding the Waiver Petition and the Fukushima Contention.[20] The Commonwealth filed an opposition to Entergy's motion to strike.[21]

In addition, Pilgrim Watch filed requests for hearing on proposed new contentions while the remand was pending. We found inadmissible the three proposed new contentions that Pilgrim Watch filed prior to the accident at Fukushima by order dated August 11, 2011 (hereinafter, our Pre-Fukushima Order)[22] and the two proposed new contentions that Pilgrim

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Entergy Oppositions to Commonwealth Motion to Supplement Bases to Contention on NRC Task Force Report on Lessons Learned from Fukushima (Sept. 13, 2011); Commonwealth of Massachusetts Motion to Reply to NRC Staff and Entergy Oppositions to Commonwealth Motion to Supplement Bases to its Contention (Sept. 13, 2011); Commonwealth of Massachusetts Amended Motion to Reply to NRC Staff and Entergy Opposition to Commonwealth Motion to Supplement Bases to its Contention (Sept. 15, 2011).

[18] Entergy's Answer Opposing Commonwealth of Massachusetts Motion to Permit Unauthorized Reply to NRC Staff and Entergy Answers Opposing Motion to Hold Licensing Decision in Abeyance (May 31, 2011); NRC Staff's Answer in Opposition to Commonwealth of Massachusetts' Motion to File Reply to Staff Response to Motion to Hold Licensing Board Decision in Abeyance Pending the Commission's Decision on Motion to Suspend Proceedings (May 31, 2011).

[19] Entergy Answer Opposing Commonwealth of Massachusetts Motion to Reply to NRC Staff and Entergy Oppositions to Commonwealth Motion to Supplement Bases of its Contention (Sept. 23, 2011).

[20] Entergy Motion to Strike Portions of the Commonwealth of Massachusetts Reply to Entergy and the NRC Staff Answers Opposing Waiver Petition and Motion to Admit Contention (July 15, 2011).

[21] Commonwealth of Massachusetts Answer in Opposition to Entergy's Motion to Strike Portions of Massachusetts Reply (July 21, 2011). We have considered all the information set out in the Commonwealth's reply for the value it contributed, and therefore need not address either the Entergy's motion to strike nor the opposition thereto from the Commonwealth.

[22] LBP-11-20, 74 NRC __, __ (slip op. at 2-3) (Aug. 11, 2011) [hereinafter Pre-Fukushima Order].

Watch filed after, and respecting information it garnered from, the accident at Fukushima by order dated September 8, 2011 (hereinafter, our Pilgrim Watch Post-Fukushima Order).[23]

During the pendency of our issuance of this ruling on the Commonwealth's pleadings respecting the events at Fukushima, Pilgrim Watch filed yet another proposed new contention.[24]

The history of this proceeding is discussed in greater detail in our Remanded Issue Order, in our Pre-Fukushima Order, and in our Pilgrim Watch Post Fukushima Order.

II. ANALYSIS

A. Stay Request

The Commonwealth requests that

> the Atomic Safety and Licensing Board (Pilgrim ASLB) hold its decision in abeyance whether to relicense the Pilgrim Nuclear Power Plant for an additional twenty (20) years until the Nuclear Regulatory Commission (NRC or Commission) issues a decision on the pending petition to suspend the Pilgrim relicensing proceeding to consider new and significant information on the lessons of the accident at the Fukushima Daiichi Nuclear Power Station.[25]

The Commonwealth states that the grant of the stay would be consistent with NRC customary practice to facilitate orderly judicial review, and states the reasons for its request as follows:

> To allow for an orderly process, and in view of the Commission's own stated intent to entertain further filings on the license suspension and related issues, the Commonwealth is requesting the Pilgrim ASLB to grant a housekeeping or anticipatory stay to allow the Commission to decide these issues before the Pilgrim ASLB may render a final licensing decision.[26]

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[23] LBP-11-23, 74 NRC __, __ (slip op. at 3) (Sept. 8, 2011) [hereinafter Pilgrim Watch Post-Fukushima Order].

[24] Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post-Fukushima (Nov. 18, 2011).

[25] Stay Request at 1.

[26] Id. at 2.

The Commonwealth explains that the request to suspend the Pilgrim relicensing proceeding is made to permit "further consideration of new and significant information arising from the Fukushima accident regarding the risks associated with the spent fuel pool at Pilgrim and related issues."[27] The Commonwealth also requests "an additional thirty days to submit expert testimony with initial findings in support [of] this request and for related relief."[28]

In addition, the Commonwealth joined in the petitions before the Commission,[29] wherein petitioners requested:

- Suspension of "all decisions regarding the issuance of construction permits, new reactor licenses, [Combined Licenses (COLs)], [Early Site Permits (ESPs)], license renewals, or standardized design certification pending completion by the NRC's Task Force . . . of its investigation of the near-term and long-term lessons of the Fukushima accident and the issuance of any proposed regulatory decisions and/or environmental analyses of those issues."
- Suspension of all proceedings—specifically, all hearings and opportunities for public comment—on reactor or spent fuel pool issues identified for investigation by the Task Force, including external event issues, station blackout, severe accident measures, implementation of 10 C.F.R. § 50.54(hh)(2) requirements on response to fire or explosions, and emergency preparedness.
- Suspension of proceedings in connection with any other issues identified by the Task Force pending completion of investigation of those issues and issuance of any proposed regulatory decisions and/or environmental analyses.[30]

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[27] Id.

[28] Id.

[29] Commonwealth of Massachusetts Response to Commission Order Regarding Lessons Learned from the Fukushima Daiichi Nuclear Power Station Accident, Joinder in Petition to Suspend the License Renewal Proceeding for the Pilgrim Nuclear Power Plant, and Request for Additional Relief (May 2, 2011) at 3.

[30] Union Electric Company d/b/a Ameren Missouri (Callaway Plant, Unit 2), CLI-11-05, 74 NRC __, __ (slip op. at 20) (Sept. 9, 2011) (citations omitted); accord Emergency Petition to Suspend All Pending Reactor Licensing Decisions and Related Rulemaking Decisions Pending Investigation of Lessons Learned from Fukushima Daiichi Nuclear Power Station Accident (Apr. 14, 2011) at 1-2. The Commission noted that the requested relief also included "analysis of whether the events at Fukushima constitute 'new and significant information' under NEPA; safety analysis of the regulatory implications of the events at Fukushima; and establishment of a schedule for raising new issues in pending licensing proceedings." Callaway, CLI-11-05, 74 NRC at __ (slip op. at 9).

In CLI-11-05, the Commission denied those petitions insofar as they requested cessation of licensing activities,[31] finding:

> [F]or pending license renewal applications, where the period of extended operation, provided renewed licenses are issued, will not begin for, at a minimum, nearly a year, and, in the majority of cases, for several years. . . . there is no imminent threat to public health and safety that requires suspension of any of these proceedings or the associated licensing decisions now.[32]

Going on, the Commission summarized as follows:

> In sum, we find no imminent risk to public health and safety if we allow our regulatory processes to continue. Instead of finding obstacles to fair and efficient decision-making, we see benefits from allowing our processes to continue so that issues unrelated to the Task Force's review can be resolved. We have well-established processes for imposing any new requirements necessary to protect public health and safety and the common defense and security. Moving forward with our decisions and proceedings will have no effect on the NRC's ability to implement necessary rule or policy changes that might come out of our review of the Fukushima Daiichi events.[33]

And, specifically addressing the Commonwealth's request that the Commission suspend this proceeding, the Commission held:

> The Commonwealth requests that we suspend the Pilgrim license renewal proceeding pending the Commission's consideration of "new and significant" information related to spent fuel pools, related risks, and regulatory requirements; and "[g]rant the Commonwealth and the public an additional reasonable time following completion of the release of the NRC's own findings on the lessons of Fukushima to comment on them and propose licensing or regulatory changes as appropriate." Consistent with our decisions on the requests for relief contained in the primary Petition, above, we deny the Commonwealth of Massachusetts's similar requests for relief. The Commonwealth's petition, like the primary Petition, fails to satisfy our three-part Private Fuel Storage test and therefore does not support suspending the Pilgrim proceeding pending evaluation of information obtained as a result of the events in Japan.[34]

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[31] Id. at __ (slip op. at 20).

[32] Id. at 25.

[33] Id. at 29.

[34] Id. at 36 (quoting Commonwealth of Massachusetts Response to Commission Order Regarding Lessons Learned from the Fukushima Daiichi Nuclear Power Station Accident, Joinder in Petition to Suspend the License Renewal Proceeding for the Pilgrim Nuclear Power Plant, and Request for Additional Relief (May 2, 2011) at 13-14 and referring to Private Fuel

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We find the Commission's ruling to be dispositive of, and therefore DENY, the Commonwealth's Stay Request.

B. Waiver Request

The Commonwealth requests:

> a waiver of 10 C.F.R. § 51.71(d) and 10 C.F.R. Part 51 Subpart A, Appendix B (collectively "spent fuel pool exclusion regulations") to the extent that these regulations generically classify the environmental impacts of high density pool storage of spent fuel as insignificant and thereby permit their exclusion from consideration in environmental impact statements (EISs) for renewal of nuclear power plant operating licenses.[35]

The Commonwealth argues that:

> Waiver of the spent fuel pool exclusion regulations is necessary in order to allow full consideration of the issues raised in the Commonwealth's new contention, also filed today, which challenges the adequacy of the environmental impact analysis and severe accident mitigation alternatives (SAMA) analysis performed by Entergy Corp. and the NRC in support of their proposal to re-license the Pilgrim nuclear power plant (NPP), in light of significant new information revealed by the Fukushima accident.[36]

The Commonwealth asserts that there are two fundamental tenets of the NRC's rulemaking on SFP issues which have been undermined by the results of the Fukushima accident and that, because the purpose of the regulation would not be served by its application in the unique circumstances of this licensing proceeding, a waiver is required.[37] In addition, the Commonwealth asserts that because SAMA analysis is performed on a plant-specific basis, and because the resultant implications from the Fukushima accident are plant-specific, the purpose

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Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-01-26, 54 NRC 376, 380 (2001)).

[35] Waiver Petition at 1-2.

[36] Id. at 2.

[37] See id. at 3-4.

of the regulation, to make a generic finding of no significant impact for all NPPs, will not be served.[38]

> Nonetheless, the Commonwealth recognizes that
>
> > information from the Fukushima accident continues to emerge, and that at this juncture the accident may not be completely understood. . . . [but], as discussed in Dr. [Gordon R.] Thompson's report, attached hereto, the Fukushima accident conclusively demonstrates that spent fuel pool and reactor accident risks are significantly higher than previously determined by the NRC.[39]

Discussing the Agency's duty to consider catastrophic events with large consequences and reasonably foreseeable impacts even where the probability of occurrence of such events is low,[40] the Commonwealth discusses the NRC's SAMA requirements and asserts that the continuing obligation to consider new information requires the NRC to update its EIS with supplemental SAMA analysis to include Fukushima-derived information.[41]

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[38] Id. at 5.

[39] Id. (referring to Declaration of Dr. Gordon R. Thompson in Support of Commonwealth of Massachusetts' Contention and Related Petitions and Motions (June 1, 2011) [hereinafter Thompson Declaration]). The Commonwealth further notes:

> [The] accident is ongoing. Publicly available information about the accident in English language – and probably in Japanese as well – is incomplete and inconsistent at this time. Nevertheless, information has become available that is new and significant in the context of the Pilgrim NPP license renewal proceeding. Additional information of this type is likely to become available over the coming months.
>
> In his report, Dr. Thompson has identified six areas in which information that is presently available regarding the Fukushima accident supports either conclusive (established) or provisional (likely) findings that challenge the adequacy of the existing SAMA analysis for Pilgrim NPP, including the analysis related to spent fuel pool risks.

Id. at 16.

[40] As we have observed before, remote and speculative events need not be considered in NEPA safety and environmental impacts analysis. E.g., LBP-11-23, 74 NRC at __ (slip op. at 14 n.66).

[41] Waiver Petition at 20-28.

In the alternative, the Commonwealth requests that the Commission (before whom this petition was also filed) "rescind the spent fuel pool exclusion regulations across the board, in a rulemaking."[42]

In CLI-11-05, discussed above, the Commission ruled on the Commonwealth's request that the Commission suspend this proceeding and grant the public additional time to comment on the NRC's completed findings regarding Fukushima and to propose licensing or regulatory changes based on them.[43] Although the Commission did not directly issue an order respecting the Commonwealth's request that we waive the exclusion respecting spent fuel pool matters from license renewal matters, it did "[d]eny the requests for relief made by the Commonwealth of Massachusetts."[44]

Of particular import to the request before us to waive an existing rule excluding spent fuel pool matters from the scope of license renewal, the Commission, addressing safety and environmental contentions raised in ongoing proceedings, held:

> [O]ur license renewal review is a limited one, focused on aging management issues. It is not clear whether any enhancements or changes considered by the Task Force will bear on our license renewal regulations, which encompass a more limited review. The NRC's ongoing regulatory and oversight processes provide reasonable assurance that each facility complies with its "current licensing basis," which can be adjusted by future Commission order or by modification to the facility's operating license outside the renewal proceeding (perhaps even in parallel with the ongoing license renewal review).[45]

The Commission acknowledged that it is "'conducting extensive reviews to identify and apply the lessons learned from the Fukushima Daiichi accident, and . . . will use the information from these activities to impose any requirements it deems necessary, irrespective of whether a plant

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[42] Id. at 30.

[43] Callaway, CLI-11-05, 74 NRC at ___ (slip op. at 36).

[44] Id. at __ (slip op. at 42) (emphasis omitted).

[45] Id. at __ (slip op. at 26) (internal citations omitted).

is applying for or has been granted a renewed operating license.'"[46] Nonetheless, because the Commission was not explicit on this particular waiver request, we address it here.

Turning to its request for waiver of the regulation excluding SFP matters from a license renewal proceeding, the Commonwealth asserts:

> The applicable regulation, 10 C.F.R. § 2.335(b), provides that the "sole ground for a petition of waiver or exception" to NRC regulations is that "special circumstances with respect to the subject matter of the particular proceeding are such that the application for the rule or regulation (or a provision of it) would not serve the purposes for which the rule or regulation was adopted."[47]

10 C.F.R. § 2.335 provides that, absent a waiver or exception from the presiding officer, "no rule or regulation of the Commission, or any provision thereof, concerning the licensing of production and utilization facilities . . . is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding subject to this part."[48] The presiding officer must dismiss any petition for waiver that does not make a "prima facie showing" of "special circumstances with respect to the subject matter of the particular proceeding . . . such that the application of the rule or regulation (or provision of it) would not serve the purposes for which the rule or regulation was adopted."[49]

In addition, as the Commonwealth properly points out,[50] the Commission has endorsed the four-pronged Millstone test respecting grant of a waiver:

> (i) the rule's strict application "would not serve the purposes for which [it] was adopted"; (ii) the movant has alleged "special circumstances" that were "not

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[46] Id. at __ (slip op. at 26-27) (quoting Entergy's Answer Opposing Petition to Suspend Pending Licensing Proceedings (May 2, 2011) at 3).

[47] Waiver Petition at 25.

[48] 10 C.F.R. § 2.335(a).

[49] Id. § 2.335(b)-(c).

[50] Waiver Petition at 26.

> considered, either explicitly or by necessary implication, in the rulemaking proceeding leading to the rule sought to be waived"; (iii) those circumstances are "unique" to the facility rather than "common to a large class of facilities"; and (iv) a waiver of the regulation is necessary to reach a "significant safety problem."[51]

The Commission carefully explained that: "The use of 'and' in this list of requirements is both intentional and significant. For a waiver request to be granted, all four factors must be met."[52] The Commission also explained that asserting that a regulation does not ensure the protection of public health and safety is not always sufficient to satisfy the first prong:[53]

> Of course, all our Part 50 regulations are aimed, directly or indirectly, at protecting public health and safety. But that does not mean that they are all suitable subjects for litigation in a license renewal proceeding. They are not. In fact, the primary reason we excluded emergency-planning issues from license renewal proceedings was to limit the scope of those proceedings to "age-related degradation unique to license renewal." Emergency planning is, by its very nature, neither germane to age-related degradation nor unique to the period covered by the Millstone license renewal application. Consequently, it makes no sense to spend the parties' and our own valuable resources litigating allegations of current deficiencies in a proceeding that is directed to future-oriented issues of aging. Indeed, at an earlier stage of this very proceeding, the Commission approved a Board decision excluding an emergency-planning contention.[54]

Entergy argues that the Waiver Petition fails to meet the second of these four prongs (special circumstances), because "the Fukushima accident has revealed no special circumstances or new information about the likelihood of a spent fuel pool fire or applicable mitigation measures."[55] The Commonwealth addresses the second prong,[56] and the NRC Staff

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[51] Dominion Nuclear Connecticut, Inc. (Millstone Nuclear Power Station, Units 2 and 3), CLI-05-24, 62 NRC 551, 559-60 (2005) (internal citations omitted). We agree that this same test is equally appropriate respecting a waiver regarding a NEPA-related contention.

[52] Id. at 560.

[53] Although this ruling dealt with a safety-related regulation, we find the principle applicable to environmental matters – the mere assertion of a shortcoming in the regulation does not rise to the required level.

[54] Id. at 560-61 (internal footnotes omitted).

[55] Entergy Answer to Waiver Petition and Fukushima Contention at 44.

[56] Waiver Petition at 25-26.

agrees that it has been satisfied.[57] But all of the prongs must be satisfied for a waiver to be granted and they are not. For example, the Commonwealth proffers no arguments regarding why the circumstances are "unique" to the Pilgrim facility rather than "common to a large class of facilities," although we might take its general arguments that all SAMAs are plant specific to address that matter.[58]

Staff observes that

> The third prong of the Millstone test embodies the Commission's policy to resolve generic issues through rulemaking, as opposed to a series of site-specific determinations in adjudications. Therefore, parties with new and significant information that could undermine the rationale for a Commission regulation must seek a rulemaking instead of challenging the regulation in a particular proceeding unless the information uniquely applies to a given adjudication.[59]

Asserting that the Commonwealth has failed to show any unique applicability to Pilgrim of information learned from the accident at Fukushima, Staff argues that all of the asserted phenomena applicable to Pilgrim could be applicable to other plants.[60] The Staff points out that Commonwealth expert Dr. Thompson's conclusions on probability are based upon global nuclear industry experience which, Staff avers, would therefore apply to all operating reactors and have no unique applicability to Pilgrim.[61] Similarly, Entergy argues that the Commonwealth has not demonstrated uniqueness, citing a number of examples such as the Commonwealth's assertion that reactor accident probability has increased which, Entergy states, must be based upon an analysis that inherently applies to every operating nuclear power plant in the world.[62]

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[57] NRC Staff Answer to Waiver Petition at 14.

[58] Id. at 4.

[59] NRC Staff Answer to Waiver Petition at 8 (citing 10 C.F.R. §§ 2.335, 2.802).

[60] Id. at 9.

[61] Id.

[62] Entergy Answer to Waiver Petition and Fukushima Contention at 44.

Staff notes the Commonwealth's use of the concept of site-specific analyses, but again asserts that the issues and arguments put forth by the Commonwealth are applicable to many other plants, not singularly Pilgrim.[63]

Further, the Staff argues that the Commonwealth has not satisfied the fourth Millstone prong because it has failed to demonstrate that the Fukushima accident raises a problem of regulatory significance for Pilgrim.[64]

Staff also asserts that the Commission has previously addressed and rejected, in this proceeding, a request for spent fuel pool accidents to be included in SAMA analyses, holding, instead, that generic analysis remains appropriate.[65] Staff further explains that the Commission's Task Force is presently undertaking an intensive review of the Fukushima events and is expected to consider many of the factors that led the Commission to conclude that the environmental impacts of onsite storage during the period of extended operations will be small.[66]

We agree with Entergy and Staff, for the reasons they have set forth in their respective Answers as well as the reasons set out in this Order, that the third element (uniqueness) of the Commission's four pronged test is plainly not satisfied in the present circumstances. In Millstone, the Commission interpreted "uniqueness" as follows:

> As for the third waiver factor—uniqueness—we cannot accept Suffolk County's argument that its circumstances are "unique" to the Millstone facility rather than "generic." Suffolk County's principal claim to uniqueness is grounded in the

[63] NRC Staff Answer to Waiver Petition at 10. Indeed, this view is bolstered by the Commission's own view that "lack of a specific link between the relief requested and the particulars of the individual applications makes it difficult to conclude that moving forward with any individual licensing decision or proceeding will have a negative impact on public health and safety." Callaway, CLI-11-05, 74 NRC at __ (slip op. at 22) (emphasis added).

[64] Id. at 14.

[65] Id. at 10-11 (citing CLI-10-14, 71 NRC __ (slip op. at 29, 39) (Jun. 17, 2010)).

[66] Id. at 15.

> county's proximity to a nuclear power facility located in an adjoining state. But Suffolk County is hardly unique in this respect. Suffolk County also claims to be unique due to changes in its demographics and roadway limitations. Yet, . . . this is an important but common problem addressed by the NRC's ongoing regulatory program. Other jurisdictions are subject to demographic trends similar to those of Suffolk County.[67]

Here a waiver has been requested from regulatory provisions that spent fuel storage pool matters are outside the scope of license renewal. Spent fuel matters will be addressed on a much wider scope than a singular focus upon the Pilgrim plant. Indeed there are more than 20 BWR Mark-I plants which share the characteristics of Pilgrim, not to mention the fact that each and every nuclear power plant in this country has a spent fuel pool. It is noteworthy that the NRC's Fukushima Task Force's recommendations regarding new programs that might be implemented in response to information gleaned from the Fukushima Dai-Ichi accidents include a program of containment overpressurization protection measures for BWR Mark-I plants,[68] making plain that the issues raised are not "unique" to the Pilgrim plant alone. This is precisely the sort of program to which the Commission referred in CLI 11-05 when it stated that issues of this nature will be addressed, if its studies of the implications from Fukushima warrant, through more generic regulatory reform.[69]

For the foregoing reasons, we DENY the request of the Commonwealth of Massachusetts for a waiver of the NRC's spent fuel pool exclusion regulations.

Nonetheless, even though matters respecting spent fuel pools are outside the scope of this proceeding, and therefore all aspects of the Commonwealth Fukushima Contention that regard spent fuel pools are inadmissible, because the Commonwealth's pleadings intertwine matters respecting increased spent fuel risks and severe (reactor) accident risks, we do not

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[67] Millstone, CLI-05-24, 62 NRC at 562 (internal footnotes omitted).

[68] Near-Term Task Force Report at § 4.2.2.

[69] See Callaway, CLI-11-05, 74 NRC at __ (slip op. at 40).

entirely eliminate discussion of some of those portions of the Commonwealth Fukushima Contention in our discussion below.

C. Fukushima Contention

For the proposed new contention to be admitted, the Commonwealth, as the party proposing admission of the contention, must satisfy the Commission's demanding regulatory requirements for reopening the record.[70]

As we noted in our earlier orders,[71] the Commission emphasized, in this proceeding, the need for affidavits to support any motion to reopen, finding that intervenors' speculation that further review of certain issues "might" change some conclusions in the final safety evaluation report did not justify restarting the hearing process.[72] This view was repeated in the Commission's ruling on the various requests by petitioners that all licensing proceedings be stayed until the Commission has completed its studies of the effects of the accidents at Fukushima.

In addition, should the requirements for reopening the record be satisfied, the requirements for untimely contentions under 10 C.F.R. § 2.309(c) must be satisfied, and the Commonwealth Fukushima Contention must satisfy the contention admissibility criteria of 10 C.F.R. § 2.309(f)(1).

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[70] See 10 C.F.R. § 2.326. In this regard, the Commission has most recently repeated its view when addressing the numerous Fukushima related petitions: "[O]ur rules deliberately place a heavy burden on proponents of contentions, who must challenge aspects of license applications with specificity, backed up with substantive technical support; mere conclusions or speculation will not suffice. An even heavier burden applies to motions to reopen." Callaway, CLI-11-05, 74 NRC at __ (slip op. at 33) (internal citations omitted).

[71] Pilgrim Watch Post-Fukushima Order at 8; Pre-Fukushima Order at 13.

[72] AmerGen Energy Co., LLC (Oyster Creek Nuclear Generating Station), CLI-08-23, 68 NRC 461, 486 (2008). The CLI-08-23 order involved four NRC proceedings, including the Pilgrim proceeding.

1. Legal Standards Governing Motion to Reopen the Record

We addressed in depth the standards for reopening a record in our Pre-Fukushima Order and expanded that discussion in our Pilgrim Watch Post Fukushima Order, and do not repeat that entire discussion here; rather we hereby incorporate that discussion by reference and set out only a few key points.

The standards for reopening the record under 10 C.F.R. § 2.326(a) are as follows:

> (1) The motion must be timely. However, an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented;
>
> (2) The motion must address a significant safety or environmental issue; and
>
> (3) The motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially.

And, as we noted in our previous rulings, a motion to reopen must be "accompanied by affidavits that set forth the factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of this section have been satisfied."[73] In such affidavits, "[e]ach of the criteria must be separately addressed, with a specific explanation of why it has been met."[74]

Additionally, where a motion to reopen relates to a contention not previously in controversy, section 2.326(d) requires that the motion demonstrate that the balance of the nontimely filing factors (*see* 10 C.F.R. § 2.309(c)) favors granting the motion to reopen. The Section 2.309(c) factors are as follows:

> (i) Good cause, if any, for the failure to file on time;
>
> (ii) The nature of the requestor's/petitioner's right under the Act to be made a party to the proceeding;
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> (iii) The nature and extent of the requestor's/petitioner's property, financial or other interest in the proceeding;

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[73] 10 C.F.R. § 2.326(b).

[74] Id.

(iv) The possible effect of any order that may be entered in the proceeding on the requestor's/petitioner's interest;

(v) The availability of other means whereby the requestor's/petitioner's interest will be protected;

(vi) The extent to which the requestor's/petitioner's interests will be represented by existing parties;

(vii) The extent to which the requestor's/petitioner's participation will broaden the issues or delay the proceeding; and

(viii) The extent to which the requestor's/petitioner's participation may reasonably be expected to assist in developing a sound record.

Finally, if the reopening standards are inapplicable as the Commonwealth avers, or if the reopening criteria had been satisfied, the new contention must also meet the standards for contention admissibility under 10 C.F.R. § 2.309(f)(1), and, where the contention is based upon new information, those of C.F.R. § 2.309(f)(2)..

2. Analysis of Commonwealth Fukushima Contention

The Commonwealth's pleadings respecting the Fukushima Contention assert:

> [T]he environmental impact analysis and the SAMA analysis in Supp. 29 to the Generic Environmental Impact Statement (GEIS) for License Renewal (1996) are inadequate to satisfy NEPA because they fail to address new and significant information revealed by the Fukushima accident that is likely to affect the outcome of those analyses. The new and significant information shows that both core-melt accidents and spent fuel pool accidents are significantly more likely than estimated or assumed in Supp. 29 of the License Renewal GEIS or the SAMA analysis for the Pilgrim NPP. As a result, the environmental impacts of re-licensing the Pilgrim NPP have been underestimated. In addition, the SAMA analysis is deficient because it ignores or rejects mitigative measures that may now prove to be cost-effective in light of this new understanding of the risks of re-licensing Pilgrim. [75]

Based upon these assertions, the Commonwealth asserts that the Pilgrim SAMA analysis should be redone to encompass

> measures to accommodate: (a) structural damage; and (b) station blackout, loss of service water, and/or loss of fresh water supply, occurring for multiple days. Also, the measures to be considered should include systems for hydrogen

[75] Fukushima Contention at 5-6.

> explosion control, filtered venting of containment, and replacement of high-density spent fuel storage racks with low-density open-frame racks.[76]

The Commonwealth supports its contention with, and provides for its basis, the report and the declaration of Dr. Thompson.[77] The findings in that declaration and report, the Commonwealth observes, are classified by Dr. Thompson as either "Provisional" or "Conclusive."[78]

The Commonwealth further supports the admissibility of this contention with a separate filing (Motion to Admit) submitting its legal arguments for admissibility.[79] The Commonwealth states, as to the separate filing:

> While the Commonwealth does not believe that the record of this proceeding has closed, the motion also seeks re-opening of the record in the alternative, in the event the ASLB determines that it has closed. The motion covers all issues that must be addressed in order to raise a contention at a late stage of a license renewal adjudication.[80]

In its Motion to Supplement, the Commonwealth asserts:

> [T]he Task Force recommended that the NRC incorporate some potential severe accidents into the "design basis" and subject them to mandatory safety regulations. By doing so, the Task Force also effectively recommends a significant change in the NRC's system for mitigating severe accidents through consideration of severe accident mitigation alternatives (SAMAs). As the Task Force recognizes, currently the NRC does not impose measures for the mitigation of severe accidents unless they are shown to be cost-beneficial or unless they are adopted voluntarily. . . . The Task Force now suggests that some severe accident mitigation measures should be adopted into the design basis, i.e., the set of regulations adopted without regard to their cost which establish the minimum level of adequate protection required for all nuclear power plants. . . . Thus, the values assigned to the cost-benefit analysis for Pilgrim

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[76] Id. at 7-8.

[77] Thompson Declaration; Gordon R. Thompson, Institute for Resource and Security Studies, New and Significant Information From the Fukushima Daiichi Accident in the Context of Future Operation of the Pilgrim Nuclear Power Plant (June 1, 2011) [hereinafter Thompson Report].

[78] Fukushima Contention at 8.

[79] Motion to Admit and Reopen.

[80] Fukushima Contention at 4 (emphasis added).

> SAMAs should be re-evaluated in light of the Task Force's finding that the value of some SAMAs is so high that they should be required as a matter of course.[81]

The Commonwealth supports its Motion to Supplement with a second Declaration from Gordon R. Thompson,[82] in which he raises matters respecting spent fuel pools and probabilities of both severe accidents and spent fuel pool fires.[83] He asserts, in relevant part, as follows (emphasis added):

> Each of [the Task Force's twelve overarching] recommendations calls for action that is new and significant in the context of future operation of the Pilgrim plant. For example, Recommendation #7 (see page 46 of the Task Force report) calls for enhanced instrumentation and water makeup capability for the spent-fuel pool of each nuclear power plant (NPP) licensed by the NRC. These capabilities do not now exist at the Pilgrim plant, and have the potential to reduce the risk of a spent-fuel-pool fire at the plant. . . .
> . . . .
> There are at least two technical reasons why the Task Force recommendations should be considered in the Pilgrim license extension proceeding. First, many of the actions recommended in the Task Force report have plant-specific features, and therefore require plant-specific regulatory attention. Second, as shown in this declaration, the findings in the Task Force report call for substantial revision of the Pilgrim-specific supplement to the NRC's generic environmental impact statement (GEIS) for license renewal of nuclear power plants, especially Appendix G of that supplement. It is my understanding that completion of an accurate, plant-specific supplement to the GEIS is required before a license extension is granted. It is my further understanding that severe accident mitigation alternatives (SAMAs) that are determined in that supplement to be cost-effective must be implemented as a condition of license extension.
> . . . .
> . . . When NPPs such as Pilgrim were designed, nuclear safety regulation was founded on the principle that abnormal situations, such as accidents, would occur within a plant's design basis. Over time, analysis and operating experience revealed that the design basis originally adopted was inadequate, resulting in a significant risk of fuel damage and radioactive release to the environment. Piecemeal efforts to address this basic problem have led to the "patchwork of beyond-design-basis requirements and voluntary initiatives" described in the Task Force report. Overarching Recommendation #1 in that report (see its page

[81] Motion to Supplement at 5.

[82] Declaration of Gordon R. Thompson Addressing New and Significant Information Provided by the NRC's Near-Term Task Force Report on the Fukushima Accident (Aug. 11, 2011) [hereinafter Thompson Supplemental Declaration].

[83] E.g., id. ¶¶ I-6, III-2 to III-4.

ix) is to establish a "logical, systematic, and coherent regulatory framework" to replace the present patchwork.[84]

Drawing from his earlier report, Dr. Thompson states:

a. The Thompson 2011 report set forth . . . findings on six specific issues that are directly relevant to license extension for the Pilgrim plant. Information provided in the Task Force report supports these findings, as shown in the following paragraphs.

. . . . The first specific issue discussed in the Thompson 2011 report . . . was the probability of reactor core damage and radioactive release, accounting for cumulative direct experience. The Thompson 2011 report found that, for the purposes of SAMA analysis, **direct experience** provides an estimate of probability that is more appropriate than licensee estimates derived from the use of probabilistic risk assessment (PRA) techniques.[85]

The NRC Staff explains that the direct experience approach

"comput[es] the core damage frequency (CDF) for a particular plant (in this case, Pilgrim) by taking the historical number of all core-damage events that have occurred at all commercial nuclear plants, regardless of plant design and site conditions, and dividing that number by the total number of years of operation of all commercial nuclear plants worldwide."[86]

In his report, Dr. Thompson asserts that his direct experience approach provides a reality check for PRA estimates, which are known to be uncertain, and that it would be prudent and responsible to assume, until proven otherwise, that a particular NPP has a core damage frequency (CDF) as indicated by direct experience.[87] He further asserts that the burden of proving that a particular NPP has a lower CDF falls to the licensee.[88]

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[84] Id. ¶¶ I-6, I-8, II-3. (emphasis added) (footnotes omitted).

[85] Id. ¶¶ III-1 to III-2 (emphasis added). The "direct experience" approach is at the center of the Commonwealth's arguments.

[86] NRC Staff Opposition to Fukushima Contention at 9 (quoting id., Att., Affidavit of Dr. S. Tina Ghosh in Support of the NRC Staff's Response to Massachusetts' Motion to Admit New Contention and Reopen to Admit New and Significant Information (June 27, 2011) at 2-3 [hereinafter Ghosh Affidavit]).

[87] Thompson Report at 16.

[88] See id. at 17.

In his supplemental declaration, Dr. Thompson also discusses the capability for operators to mitigate an accident:

> The second specific issue discussed in the Thompson 2011 report . . . was the operators' capability to mitigate an accident, and the effect of that capability on the conditional probability of a spent-fuel-pool fire during a reactor accident. The Thompson 2011 report set forth three findings on this issue. First, the operators' capability to mitigate an accident at the Pilgrim NPP can be severely degraded in the local environment created by a reactor accident. Second, the nuclear industry's recently-disclosed extensive damage mitigation guidelines (EDMGs) are inadequate to address the range of core-damage and spent-fuel-damage events that could occur at Pilgrim. Third, there is a substantial conditional probability of a spent-fuel-pool fire during a reactor accident at Pilgrim.[89]

Going on, Dr. Thompson recognizes that the Task Force report does not directly address the statements of his report, but asserts the Task Force nonetheless, in effect, endorses his findings:

> The Task Force report does not directly address the [three] findings [on operators' capability to mitigate an accident] . . . . However, Task Force recommendations effectively endorse these findings. For example, implicit endorsement of these findings is clearly evident in Task Force Recommendation #7. . . . Recommendation #7 calls for enhanced instrumentation and water makeup capability for the spent-fuel pool of each nuclear power plant licensed by the NRC. Pages 43-46 of the Task Force report provide details. The recommended capabilities do not now exist at the Pilgrim plant.[90]

Dr. Thompson further asserts:

> The fourth specific issue discussed in the Thompson 2011 report . . . was hydrogen control. The Thompson 2011 report found that hydrogen explosions similar to those experienced at Fukushima could occur at the Pilgrim NPP.
>
> . . . Recommendations #5 and #6 in the Task Force report clearly support the finding of the Thompson 2011 report on hydrogen control. Recommendation #5, described at pages 39-41 of the Task Force report, calls for requirement of reliable, hardened venting of the containment at each boiling-water-reactor (BWR) plant with a Mark I or Mark II containment. The Pilgrim plant is a BWR with a Mark I containment. Hydrogen control would be one of the major functions of the recommended venting system. It should be noted . . . that hardened venting systems at BWR plants have a variety of plant-specific design features. Recommendation #6, described at pages 41-43 of the Task Force report, calls

[89] Thompson Supplemental Declaration ¶ III-4 (emphasis added).

[90] Id. ¶ III-5 (emphasis added).

> for further investigation of hydrogen control as part of a longer-term review of the Fukushima accident.
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> . . . The fifth specific issue discussed in the Thompson 2011 report . . . was the probability of a spent-fuel-pool fire and radioactive release, accounting for Fukushima direct experience. . . . The Thompson 2011 report found that there is a substantial conditional probability of a spent-fuel-pool fire during a reactor accident at Pilgrim.[91]

As discussed above,[92] for this new contention submitted by the Commonwealth to be admitted, there are several legal thresholds to be passed: the requirements of 10 C.F.R. § 2.326; the requirements for a nontimely contention set out in subsection (c) of 10 C.F.R. § 2.309; and all of the requirements for an admissible contention under 10 C.F.R. § 2.309(f)(1), and, where the reopening requirements have been satisfied or are inapplicable, the requirements of subsection (i) through (iii) of 10 C.F.R. § 2.309(f)(2)

Although the pleadings are not organized to address these standards separately, we address them seriatim for clarity.

a. The Requirements of 10 C.F.R. § 2.326 Regarding Reopening a Closed Record

The Commonwealth states, in its Motion to Admit, that it believes the standards set out in 10 C.F.R. § 2.309(f)(2)(i)-(iii) for the timely filing of contentions based on newly discovered information govern admissibility of their contention because it believes the record of this proceeding remains open and the contention is timely filed.[93] Nevertheless, it addresses the reopening standards.

Entergy answers that the Commonwealth's contention fails to satisfy any of the standards for reopening a closed record, asserting that it fails to meet any of the requirements in 10 C.F.R. § 2.326(a)(1)-(3) and that the supplied affidavit fails to satisfy the requirements of 10

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[91] Id. ¶¶ III-8 to III-10 (emphasis added).

[92] Supra Section II(C).

[93] Motion to Admit at 2.

C.F.R. § 2.326(b).[94] Similarly, Staff answers generally that this contention should be denied because it does not satisfy the standards for reopening a closed record, the Thompson Report does not establish that information gleaned for the accident at Fukushima itself would materially alter the Pilgrim SAMA analysis and the findings of the GEIS, or that they raise a significant environmental issue, or is timely.[95]

(i) Is the motion timely under § 2.326(a)(1)?

The Commonwealth begins with the assertion that the contention is timely because it is based upon new, not previously available information.[96] The contention is based, asserts the Commonwealth, upon new information from the Fukushima accident regarding the actual occurrence of radiological release rather than the probabilistic analysis used in the present license renewal application (LRA).[97] Referring to the Thompson Report, the Commonwealth avers that new information is now available regarding the probability of core melt, station blackout duration, the effectiveness of mitigation measures (including the potential benefits of filtered containment venting), and the import of spent fuel accidents.[98]

Further, argues the Commonwealth, the contention is timely submitted because it was submitted "before the NRC ha[d] even published its initial findings about an accident that continues to unfold."[99] The Commonwealth observes that "from a technical standpoint it would have been preferable to wait for further developments before filing a contention," but stated that

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[94] Entergy Answer to Waiver Petition and Fukushima Contention at 18.

[95] NRC Staff Opposition to Fukushima Contention at 2.

[96] Motion to Admit at 3.

[97] Id.

[98] Id. at 3 (citing Thompson Report at 14-18, 29).

[99] Id. at 5.

it filed its contention based on then-available information because a license renewal decision for the Pilgrim NPP may be imminent.[100]

The Commonwealth summarizes the new and significant information as follows:

1. The experience of the Fukushima accident, taken together with the history of other NPP accidents in the world, shows that the estimate of core damage frequency relied on in Supp. 29 and the related SAMA analysis is unrealistically low by an order of magnitude.
2. The experience of the Fukushima accident shows that the NRC's assumptions about operators' capability to mitigate an accident at the Pilgrim NPP are unrealistically optimistic and that in fact, the operators' capability to carry out mitigative measures can be severely degraded in the accident environment.
    a. Mitigative measures known as extensive damage mitigation guidelines (EDMGs), which the NRC previously relied on in its Rulemaking Denial to dismiss the Commonwealth's concerns that spent fuel pool storage impacts are insignificant, are clearly inadequate to address the range of core-damage and spent-fuel-damage events that could occur at Pilgrim.
    b. Given the demonstrated ineffectiveness of the mitigative measures relied on by the NRC to conclude that spent fuel storage impacts are insignificant, there is a substantial conditional probability of a spent-fuel-pool fire during a reactor accident at Pilgrim.
    c. Based on operators' experience during the Fukushima accident and a review of the EDMGs that were publicly disclosed pursuant to the Fukushima accident, the NRC's excessive secrecy regarding accident mitigation measures and the phenomena associated with spent-fuel-pool fires degrades the licensee's capability to mitigate an accident at the Pilgrim NPP.
    d. Based on the occurrence of hydrogen explosions at Fukushima NPPs and on the reported experience of Fukushima operators with hydrogen control systems, it appears likely that hydrogen explosions similar to those experienced at Fukushima could occur at the Pilgrim NPP, and therefore should be considered in the SAMA analysis.
    e. Based on currently available information regarding damage to spent-fuel pools and their support systems (for cooling, makeup, etc.), there appears to be a substantial conditional probability of a spent-fuel-pool fire during a reactor accident at Pilgrim. Therefore the NRC's previous rejection of the Commonwealth's concerns regarding the environmental impacts of high-density pool storage of spent fuel has been refuted.
    f. Based on the reported release of radioactive material to the atmosphere from NPPs at Fukushima, it appears likely that filtered venting of the

[100] Id. at 5 (citing Thompson Declaration ¶ 14 and Thompson Report at 5-6). In this regard, we note the Commission's view, discussed above, that the pending renewal of a license is not a reason to suspend licensing activities. See supra text accompanying note 32.

> Pilgrim reactor containment could substantially reduce the atmospheric release of radioactive material from an accident at the Pilgrim NPP.[101]

Staff avers that none of the reasons the Commonwealth provides satisfies the timeliness criterion in 10 C.F.R. § 2.326(a)(1) and because of ongoing efforts and the developing state of information on the accident, the Commonwealth's contention, as framed, is premature.[102] Moreover, asserts Staff, the lack of definitive information causes the claims to be in the nature of speculation, and the Commonwealth must raise issues that are "based on 'more than mere allegations; it must be tantamount to evidence' to overcome the strict requirements for reopening a closed record."[103] Thus, Staff concludes, the Commonwealth's' attempts to litigate the impact of the events of Fukushima are untimely because its contention largely relies, even according to the Commonwealth, upon incomplete and undeveloped information.[104]

Entergy asserts that all of the Commonwealth's claims and bases could have been raised long ago, and that Fukushima provided no materially new information with respect to these claims.[105] To support this assertion, Entergy challenges the "newness" of information providing the foundation for the "direct experience" information underlying the Commonwealth's challenge, arguing:[106]

> First, Dr. Thompson's CDF calculation is not timely raised. If the CDF assumed by the Pilgrim SAMA analysis is "unrealistically low" after the Fukushima accident under Dr. Thompson's direct experience method, it was also unrealistically low long before Fukushima. Under Dr. Thompson's reasoning, there were two core melt accidents before Fukushima, Three Mile Island and Chernobyl. Two core melt accidents over approximately 14,484 years of reactor operations results in a

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[101] Fukushima Contention at 6-7.

[102] NRC Staff Opposition to Fukushima Contention at 13.

[103] Id. at 14.

[104] Id.

[105] Entergy Answer to Waiver Petition and Fukushima Contention at 21.

[106] Because of the fundamental import of these arguments to our decision, we repeat Entergy's response nearly verbatim.

> "direct experience" CDF of approximately 1.4E-04 per reactor year, or approximately four times higher than the CDF assumed in the Pilgrim SAMA. At the time the Pilgrim LRA was submitted five years ago, there were approximately 2,200 fewer reactor years of operation experience than there are now (five years multiplied by 440 operating units). Hence, at the time the initial opportunity for hearing was announced, the direct experience method would have revealed a CDF of 1.6E-04 per reactor year, or five times more than that assumed in the Pilgrim SAMA analysis. Under Dr. Thompson's rationale, the Pilgrim SAMA analysis CDF has been deficient since the outset of the proceeding, and therefore Dr. Thompson's direct experience challenge to Pilgrim's SAMA analysis is not timely raised now.[107]

Entergy goes on to discuss the Commonwealth's renewed claims respecting spent fuel issues, asserting that nothing new or materially different regarding spent fuel issues is raised.[108] Entergy notes that the Commonwealth raised the same issue in its appeal of the Commission's Rulemaking Denial to the U.S. Court of Appeals for the Second Circuit.[109]

Entergy then argues that the Commonwealth's claim that "excessive secrecy degrades the licensee's capability to mitigate an accident at the Pilgrim NPP" is a policy issue unrelated to any SAMA or NEPA issue.[110]

As to hydrogen explosion issues, Entergy provides affidavit support for the position that the potential for hydrogen explosions is not new, but rather has been recognized by the industry since the Three Mile Island accident, and regulations are in place to ensure that combustible gases are controlled to minimize this potential.[111] Further to the point, Entergy notes that Dr. Thompson does not point out any respect in which he claims that the Pilgrim SAMA

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[107] Id. at 22-23.

[108] Id. at 23-25.

[109] Id. at 25 (citing Brief of Petitioners at 33-34, New York v. NRC, 589 F.3d 551 (2nd Cir. 2009) (No. 08-3903-ag(L))).

[110] Id. at 25 (quoting Fukushima Contention at 7).

[111] Id. at 26 (citing id., Att., Declaration of Joseph R. Lynch, Lori Ann Potts, and Dr. Kevin R. O'Kula in Support of Entergy's Answer Opposing Commonwealth Claims of New and Significant Information Based on Fukushima ¶ 76 [hereinafter Lynch, Potts, and O'Kula Declaration] and 10 C.F.R. § 50.44).

inadequately considered hydrogen explosions.[112] Thus, argues Entergy, there is no new or materially different information from Fukushima that was not already accounted for in the Pilgrim SAMA analysis.[113]

Finally, Entergy points out that the installation of a filtered direct torus vent (DTV) was considered in Pilgrim's SAMA analysis and subsequent responses to NRC requests for additional information, and that the accidents at Fukushima have revealed no new or materially different information not already considered in Pilgrim's SAMA analysis.[114]

Addressing the alternative means to satisfy Section 2.326(a)(1), the Commonwealth asserts its contention presents an exceptionally grave issue for three reasons:

> First, the Fukushima accident shows that a severe reactor and/or spent-fuel-pool accident is significantly more likely than estimated or assumed in the NRC's current environmental analyses for the Pilgrim NPP. Second, the experience of the Fukushima accident shows that the accident mitigation measures relied on by the NRC are inadequate to prevent the type of catastrophic damage at Pilgrim that has occurred at Fukushima. Finally, the Fukushima accident shows how corrosive and debilitating to accident responders is the high level of secrecy that the NRC has maintained with respect to accident mitigation measures, thereby contributing to the use of ineffective measures at Fukushima. Accident mitigation measures (excluding sensitive, site-specific details) should be subject to public scrutiny in an appropriate environmental review process, which includes those with primary emergency responsibilities such as the Commonwealth, in order to ensure that they are known to emergency personnel and have been adequately evaluated for effectiveness.[115]

Entergy answers that, because exceptionally grave is interpreted to mean "a sufficiently grave threat to public safety," since the Commonwealth's contention does not regard any safety issue but seeks only revised environmental analyses in light of the purportedly new information,

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[112] Id.

[113] Id. (citing Lynch, Potts, and O'Kula Declaration ¶¶ 79-88).

[114] Id. (citing Lynch, Potts, and O'Kula Declaration ¶¶ 92-99).

[115] Motion to Admit and Reopen at 10-11 (emphasis added) (citing Thompson Declaration ¶ 15 and Thompson Report).

there is nothing in the Fukushima Contention that can be characterized as exceptionally grave.[116]

(ii) Does the motion address a significant safety or environmental issue?

Addressing the requirements of Section 2.326(a)(2), the Commonwealth asserts the contention raises a significant environmental issue for the same reasons that it presents an exceptionally grave issue: the Fukushima accident shows that (1) the Pilgrim environmental analyses underestimates the likelihood of a severe reactor and/or spent fuel pool accident; (2) the NRC is relying on inadequate accident mitigation measures; and (3) the NRC's high level of secrecy about accident mitigation measures debilitates accident responders.[117]

As to the specific assertion that a significant environmental issue was raised, Entergy refers us to the standard adopted by the Commission that "the allegedly new and significant information must 'paint a seriously different picture of the environmental landscape.'"[118] Entergy asserts that bare assertions and speculation do not supply the requisite support to satisfy the Section 2.326 standards.; i.e., a mere showing that changes to the SAMA analysis results are possible or likely or probable is not enough.[119] Entergy asserts that the Commonwealth's own pleadings ("likely to affect" and "may prove to be") demonstrate its assertions are speculative.[120] Entergy explains that Dr. Thompson's declaration is also speculative and void of connection to

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[116] Entergy Answer to Waiver Petition and Fukushima Contention at 27.

[117] Motion to Admit and Reopen at 10 (citing Thompson Declaration ¶ 15 and Thompson Report).

[118] Entergy Answer to Waiver Petition and Fukushima Contention at 28 (quoting Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-06-03, 63 NRC 19, 28 (2006) [hereinafter Private Fuel Storage II]).

[119] Id. (quoting Amergen Energy Company, LLC (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 287 (2009) and AmerGen Energy Company, LLC (Oyster Creek Nuclear Generating Station), CLI-08-28, 68 NRC 658, 670, 674 (2008) [hereinafter Oyster Creek I]).

[120] Id. at 28-29 (quoting Fukushima Contention at 5, 9) (emphasis added by Entergy).

the Pilgrim SAMA analysis or the Pilgrim Environmental Report.[121] Like Entergy, Staff avers the motion to reopen the record should be denied for failing to satisfy 10 C.F.R. § 2.326(a)(2);[122] the Commonwealth has not

> demonstrated that the . . . contention raises a significant environmental issue. . . . Because [the Commonwealth's] claims challenge the GEIS and the SAMA analysis, which is a part of the NRC's environmental review, the . . . contention raises an environmental issue.[123]

Noting that there is no precise definition of the level of issue necessary to be "significant," Staff asserts the proper standard can be determined by analogy to an Appeal Board decision regarding the significance of safety contentions stating that to demonstrate a significant safety issue, "petitioners 'must establish either that uncorrected . . . errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely.'"[124] Based on this logic, Staff states:

> The Thompson Report discusses none of the site specific risks at Pilgrim that are discussed in the FSEIS and lacks sound, technical analyses that compare the site characteristics of the Pilgrim and Fukushima plants. . . . Consequently, [the Commonwealth] cannot claim, based on the events at Fukushima, that the Pilgrim plant presents a unique threat to public health and safety.
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> [The Commonwealth] also has not shown that the issue it seeks to raise constitutes a significant environmental issue that requires the Board to make an exception and re-open a closed record. [The Commonwealth] seeks to ensure compliance with NEPA. But, the courts have often observed that NEPA is a procedural statute that does not mandate any particular results. . . .
>
> In fact, Dr. [S. Tina] Ghosh and Dr. Nathan Bixler recently explained in a June 6, 2011 affidavit, in response to Pilgrim Watch's request for hearing on a new SAMA contention, "that the SAMA analysis is not a safety analysis; it is a cost-

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[121] Id. at 29.

[122] NRC Staff Opposition to Fukushima Contention at 13.

[123] Id. at 10.

[124] Id. at 10–11 (quoting Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-940, 32 NRC 225, 243 (1990)).

> benefit analysis for the purpose of identifying cost-beneficial mitigation alternatives that existing plant examinations missed." Thus, the SAMA analysis has no direct safety or environmental significance.[125]

The Commonwealth, in its Reply, responds:

> The Staff's position that SAMAs are legally insignificant is incorrect as a matter of law. As the Council on Environmental Quality recognizes, consideration of alternatives "is the heart of the environmental impact statement." Consistent with NEPA's requirement to consider alternatives, the NRC's Severe Reactor Accidents Policy Statement commits the Commission to "take all reasonable steps to reduce the chances of occurrence of a severe accident involving substantial damage to the reactor core and to mitigate the consequences of such an accident should one occur." . . .
>
> Moreover, the Staff misses the point of the Commonwealth's contention, which is that new information shows the existence of previously unconsidered accident vulnerabilities that increase the environmental impacts of re-licensing Pilgrim and therefore the outcome of the cost-benefit analysis of alternatives. The Fukushima accident brings severe accident statistics worldwide to a level which is well above the generally accepted goals for nuclear safety of no more than one accident per 100,000 reactor year.[126]

Responding to the Staff's use of the word "unique," the Commonwealth argues

> NEPA contains no requirement that environmental impacts must be particular to a facility in order to be worthy of consideration in an EIS. The only relevant question is whether the experience of the Fukushima accident shows that the potential for a severe accident at the Pilgrim nuclear plant is significantly greater than previously considered in the environmental analyses for Pilgrim – and the Commonwealth has met that standard of proof, based upon expert testimony and the NRC's own past practice and pronouncements on the significance of direct experience to evaluate risk.[127]

(iii) Does the motion demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially?

And, finally, as to the requirements of 2.326(a)(3), the Commonwealth asserts that a materially different result would be likely because the NRC would have considered a

> much broader and more rigorous array of severe accident mitigation alternatives (SAMAs) than have been previously considered, including systems for hydrogen

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[125] Id. at 12 (citations omitted).

[126] Reply for Waiver Petition and Fukushima Contention at 7-8 (internal citations omitted).

[127] Id. at 9.

> control, containment venting, and replacement of high-density spent fuel storage racks with low-density, open-frame racks.[128]

Entergy and the NRC Staff aver that the contention fails to demonstrate that a materially different result would be obtained had the asserted new information been considered ab initio.[129] Entergy notes that the Commonwealth has a "deliberatively heavy" burden to demonstrate that a materially different result would be likely, and that is it not sufficient simply to raise an issue: "Rather, 'longstanding agency practice hold[s] that a party seeking to reopen a closed record to introduce a new issue . . . must back its claim with enough evidence to withstand summary disposition when measured against its opponent's contravening evidence.'"[130] Entergy points out that "'no reopening of the evidentiary hearing will be required if the documents submitted in response to the motion demonstrate that there is no genuine unresolved issue of fact.'"[131] Entergy's asserts its experts' declaration "shows that there is no genuine unresolved issue of material fact."[132]

Staff and Entergy assert that their experts' declarations refute Dr. Thompson's claim that direct experience shows that "the licensee has underestimated the baseline CDF [(core damage

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[128] Motion to Admit and Reopen at 11 (citing Thompson Declaration ¶ 16 and Thompson Report § VI).

[129] Entergy Answer to Waiver Petition and Fukushima Contention at 31; NRC Staff Opposition to Fukushima Contention at 8.

[130] Entergy Opposition to Fukushima Contention at 30 (quoting Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-05-12, 61 NRC 345, 348 (2005) [hereinafter Private Fuel Storage I]).

[131] Id. at 30-31 (quoting Private Fuel Storage I, CLI-05-12, 61 NRC at 350).

[132] Id. at 31.

frequency)] of the Pilgrim plant by an order of magnitude."[133] Entergy asserts its experts' declaration explicitly demonstrates that Dr. Thompson's "direct experience" method

> is not a scientifically accepted approach because it has no basis in logic, has never been used to calculate a CDF, and violates fundamental precepts of PRA developed and used throughout the nuclear industry, including regulation by the NRC. . . . [and] is inherently invalid in that it does not provide an appropriate statistical basis for calculating the CDF for Pilgrim.[134]

Entergy elaborates that

> Dr. Thompson's direct experience CDF method directly contradicts fundamental precepts of PRA developed and used throughout the nuclear industry, including regulation by the NRC for the past 36 years. Under well-established NRC precedent, practice and regulatory guidance, PRAs are based on specific reactor and containment design, operating procedures, and site considerations for evaluating overall vulnerabilities, establishing prioritization of potential improvements, and for purposes of making risk-informed decisions. Utilizing design-specific and site-specific information is critical to obtain meaningful results because many nuclear plants have significant differences in design and siting that directly affect the probability of a core damage event. Dr. Thompson's direct experience CDF method would nevertheless establish one CDF for all plants with no distinction for design and site differences. Dr. Thompson's method ignores and fails to take into account plant-unique site conditions, plant design, support system dependencies, plant maintenance procedures, plant operating procedures, operator training, and the dependencies all of which directly affect and influence the CDF estimate for a specific plant.[135]

The Staff's expert, Dr. Ghosh, also criticizes the direct experience method because it "does not consider that each power plant has different risks that are based on the design of the plant, the site location, and site geography among other things."[136] The Staff also points out that Dr. Thompson does not discuss any of that in depth.[137]

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[133] NRC Staff Opposition to Fukushima Contention at 8 (quoting Thompson Report at 17); see also Entergy Answer to Waiver Petition and Fukushima Contention at 31 (citing Thompson Report at 17).

[134] Entergy Answer to Waiver Petition and Fukushima Contention at 31 (citing Lynch, Potts, and O'Kula Declaration ¶¶ 16-18, 33-34).

[135] Id. at 31-32 (citing Lynch, Potts, and O'Kula Declaration ¶¶ 18-24).

[136] NRC Staff Opposition to Fukushima Contention at 9 (citing Ghosh Affidavit at 2).

[137] Id.

Entergy concludes that

> [a]pplied to the facts and circumstance here, Dr. Thompson's direct experience CDF method would have Pilgrim and all other plants arbitrarily increase their CDF even though they may never be subject to a tsunami nor, if subject, may be able to mitigate the event so as to suffer no core damage.
>
> For similar reasons, Dr. Thompson's direct experience method is inherently inadequate to estimate the CDF for Pilgrim in that it does not provide a sufficient or appropriate statistical basis for doing so. . . . The inappropriateness of using Dr. Thompson's direct experience method for calculating the CDF is highlighted by the fact that none of the five core-melt data points in Dr. Thompson's database are applicable to Pilgrim.[138]

The Staff also points out:

> [T]he contention, as framed by [the Commonwealth], raises issues that either were previously considered and rejected by the Board and the Commission or were found to not demonstrate that there would be a materially different result if the events of Fukushima are considered. The Staff has already considered spent fuel pool accidents similar to the events referenced in [the Commonwealth's] Contention, and those results have been represented in the GEIS. Nothing known about the FDNPP accident indicates a significant environmental impact not previously considered in the GEIS. Therefore, issues 2 ("operator actions"), 3 ("secrecy"), and 5 ("spent fuel pool fires") are not subject to legal challenges under the re-opening and contention admissibility rules.[139]

Turning to the Commonwealth's assertions about spent fuel pool accidents,[140] Entergy, relying upon, and citing to as relevant, its experts' affidavits, asserts that there again, the Commonwealth has failed to demonstrate that a materially different result would be likely had their allegedly new and significant information been considered initially, and that Entergy's Declaration shows that there is no genuine unresolved issue of material fact.[141]

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[138] Entergy Answer to Waiver Petition and Fukushima Contention at 34-35 (citing Lynch, Potts, and O'Kula Declaration at ¶ 23).

[139] NRC Staff Opposition to Fukushima Contention at 7-8 (internal footnotes and citations omitted).

[140] Notwithstanding our denial of the Commonwealth's requested waiver of our spent fuel pool accident exclusionary regulations, we address these matters here for completeness.

[141] See Entergy Answer to Waiver Petition and Fukushima Contention at 31, 36-40.

Regarding hydrogen generation, the NRC Staff continues:

> Next, the Thompson Report asserts that generation of hydrogen during a reactor accident is a problem and discusses the flaws associated with Mark I reactor containments. Though Dr. Thompson attempts to draw comparisons that "the Pilgrim NPP and the NPPs involved in the Fukushima accident each have a low-volume, pressure-suppression containment[,"] the analysis stops short of analyzing how this general design observation would materially alter the current Pilgrim SAMA analysis. . . .
>
> The report lacks any detailed discussion of how the Mark I reactor containment design at Fukushima is similar or different from the design at the Pilgrim plant, the site-specific risks and hazards at the Pilgrim plant, or how the operation at Fukushima and Pilgrim might differ. In addition, while Dr. Thompson concludes in the report that "filtered venting of containment should be considered in a re-done SAMA analysis for Pilgrim," the report ignores the FSEIS discussion identifying filtered vents as one of the candidate SAMAs.[142]

Entergy argues that Dr. Thompson's claims that hydrogen explosions experienced at Fukushima could be replicated at the Pilgrim plant, and that the potential for such explosions has not been adequately considered in Pilgrim's SAMA analysis, that containment venting and other hydrogen control systems at Pilgrim should be upgraded, and that the plant should be modified to use passive mechanisms as much as possible, are not justified in light of what actually occurred at Fukushima.[143] Entergy avers that Dr. Thompson "nowhere references or addresses the Pilgrim SAMA analysis's extensive consideration of hydrogen explosions, let alone provide[s] any explanation of how any of it is inadequate."[144] Referring extensively to its experts' Declaration, Entergy observes that the potential for hydrogen explosions is not new information; both design features and regulations are in place at Pilgrim to control hydrogen generation and to prevent hydrogen explosions within the primary containment.[145] In particular,

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[142] NRC Staff Opposition to Fukushima Contention at 9–10 (internal footnotes and citations omitted).

[143] Entergy Answer to Waiver Petition and Fukushima Contention at 41.

[144] Id.

[145] Entergy Answer to Waiver Petition and Fukushima Contention at 42 (citing Lynch, Potts, and O'Kula Declaration ¶ 76).

the Pilgrim primary containment is inert, i.e., filled with non-combustible nitrogen gas, and Pilgrim's procedures for containment venting assure that sufficient hydrogen does not accumulate within the primary containment.[146] For example, based on the data from Fukushima, Entergy states that the Pilgrim venting procedures would require venting of the primary containment long before that action was undertaken at Fukushima.[147] In further contrast to the events at Fukushima, Entergy points out that, "[a]t Pilgrim the authority to vent the containment rests with the control room Shift Manager, rather than a government official, as appears to have been the case at Fukushima."[148] Moreover, states Entergy,

> the potential for hydrogen explosions within either the primary or secondary containments has been fully considered in the Pilgrim SAMA analysis. Specifically, hydrogen explosion within the primary containment is considered a credible mechanism for early primary containment failure, which considers the potential loss of containment integrity at or before reactor pressure vessel failure.[149]

Entergy observes that

> Table E.1-5 of the Environmental Report specifically identifies a functional event node that considers failure of the primary containment vessel due to hydrogen explosion. Several collapsed accident progression bins ("CAPBs"), which represent the consequence radioactive source terms that are used to evaluate postulated accident consequences in the SAMA analysis, include accident sequences in which early containment failure occurs. Thus, hydrogen explosion is considered in these CAPBs. Similarly, the potential for hydrogen explosion in the reactor building has been considered, because the SAMA analysis considers the ability of the reactor building to retain fission products released from containment.[150]

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[146] Id. (citing Lynch, Potts, and O'Kula Declaration ¶¶ 76-77).

[147] Id. (citing Lynch, Potts, and O'Kula Declaration ¶ 77).

[148] Id. (citing Lynch, Potts, and O'Kula Declaration ¶ 77).

[149] Id. (citing Lynch, Potts, and O'Kula Declaration ¶¶ 79-88).

[150] Id. at 42-43 (citing Lynch, Potts, and O'Kula Declaration ¶¶ 83, 85-87).

Entergy points out that Dr. Thompson "nowhere references, discusses, or otherwise disputes the means by which hydrogen explosion are already considered in the Pilgrim SAMA analysis."[151]

Entergy asserts that, as demonstrated in a report prepared by the Government of Japan on the Fukushima accident (the Japanese Government Report) and confirmed by the International Atomic Energy Agency (IAEA) Mission Report on Fukushima, it is clear that the Fukushima hydrogen explosions occurred in the reactor buildings, or secondary containments, of Units 1 and 3.[152] Entergy points out that "[t]his distinction is important because the primary containment is the robust concrete-reinforced steel structure designed to contain radioactive releases from any damage to the reactor vessel."[153] At Fukushima Units 1 and 3, Entergy states,

> although the leakage pathways have not been identified, hydrogen and radioactive material leaked into the secondary containment and then exploded. The result is that some gases that were intended to be released into the environment first collected in the reactor building and then were released into the environment with the explosion.[154]

Entergy states that "[t]his sequence of events stands in stark contrast to what could have occurred had the primary containments themselves suffered catastrophic failures from hydrogen explosions."[155]

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[151] Id. at 43 (citing Lynch, Potts, and O'Kula Declaration ¶ 88).

[152] Id. at 41 (citing Lynch, Potts, and O'Kula Declaration, Exh. 4, Nuclear Emergency Response Headquarters, Government of Japan, Report of Japanese Government to the IAEA Ministerial Conference on Nuclear Safety – The Accident at TEPCO's Fukushima Nuclear Power Stations (June 2011) [hereinafter Japanese Government Report] and Lynch, Potts, and O'Kula Declaration, Exh. 5, Michael Weightman et al., IAEA International Fact Finding Expert Mission of the Fukushima Dai-Ichi NPP Accident Following the Great East Japan Earthquake and Tsunami (May 24-June 2, 2011) [hereinafter IAEA Report]).

[153] Id. at 41-42 (citing Lynch, Potts, and O'Kula Declaration ¶ 73).

[154] Id. at 42 (citing Lynch, Potts, and O'Kula Declaration ¶ 73).

[155] Id. (citing Lynch, Potts, and O'Kula Declaration ¶ 73).

Further, Entergy asserts that Dr. Thompson's claims regarding the alleged secrecy of mitigative measures do not concern either NEPA or SAMA analysis, and are therefore not pertinent here.[156]

(iv) Is the motion supported by an expert affidavit?

The Commonwealth asserts, addressing the requirement for an expert affidavit set out in Section 2.326(b), that its motion is supported by the declaration of an expert, Dr. Thompson, that sets forth the factual and/or technical bases for the Commonwealth's claims that the criteria of 10 C.F.R. § 2.326(a) have been satisfied.[157] The Commonwealth further asserts that the Thompson Supplemental Declaration also sets forth those bases.[158]

Entergy disagrees, asserting that the Commonwealth's contention is not supported by the requisite expert affidavit, noting that 10 C.F.R. § 2.326(b) requires that a supporting affidavit "be given by competent individuals with knowledge of the facts alleged, or by experts in the disciplines appropriate to the issues raised."[159] Referring us to the principle that the party sponsoring a witness has the burden of demonstrating his or her expertise, Entergy asserts that Dr. Thompson's "Declaration and Curriculum Vitae fail to show that he has the requisite education, training, skill, or experience in the operation of a nuclear power plant or in PRA . . . to support [the] Commonwealth's Contention."[160]

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[156] Id. at 40.

[157] Motion to Admit and Reopen at 12 (citing Thompson Declaration and Thompson Report).

[158] Motion to Supplement at 11.

[159] Entergy Answer to Waiver Petition and Fukushima Contention at 18 (quoting 10 C.F.R. § 2.326(b)); Entergy Opposition to Motion to Supplement at 20 n.17 (quoting 10 C.F.R. § 2.326(b)).

[160] Entergy Answer to Waiver Petition and Fukushima Contention at 18-19 (quoting Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-410, 5 NRC 1398, 1405 (1977)).

Entergy avers that Dr. Thompson's "'simplistic' method for calculating CDF entirely disregards the detailed design-, plant type-, and site-specific PRA analysis that identifies initiating events and their likelihood of potentially leading to core damage used to establish the CDF, subsequent reactor containment release, and environmental release conditions."[161]

b. The Requirements of 10 C.F.R. § 2.309(c)

As to being based upon information which was not previously available, the Commonwealth alleges it demonstrates the Fukushima accident has produced new and significant information (which it has detailed as we noted above) and that "the risk of core melt accident[s] is an order of magnitude higher than estimated in Supp. 29 of the License Renewal GEIS."[162]

They also assert that "the Fukushima accident conclusively showed that the types of mitigative measures that the NRC relied on . . . were ineffective to stop the progression of a very serious spent fuel pool accident,"[163] but note that "[w]hile affirmative evidence of a pool fire has not emerged at this writing, nothing about the accident has contradicted Dr. Thompson's view that the Pilgrim spent fuel poses a serious risk of fire if water is lost from the pool."[164]

As to the requirement that the information on which the contention is based is materially different than information previously available, the Commonwealth asserts (referring to the Thompson report at 14-18) a material difference because their new contention "is based primarily on the actual occurrence and experience of a radiological accident, as contrasted with

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[161] Id. at 19 (citing Lynch, Potts, and O'Kula Declaration ¶ 24-28).

[162] Fukushima Contention at 2. The Commonwealth also asserts that the accident confirmed the Commonwealth's previously aired concerns that spent fuel pools present unacceptable environmental risks. Id.

[163] Id. at 2-3.

[164] Id. at 2 (citing Thompson Report at 26-27).

predictions of the behavior of an accident based on probabilistic risk assessment."[165] The Commonwealth then concludes that "the experience of the Fukushima accident provides new insights into the probability of reactor core melt events, the potential duration of station blackouts, the effectiveness of mitigative measures, and the behavior of spent fuel pools under accident conditions."[166]

And, finally, the Commonwealth asserts that because the releases from Fukushima are ongoing, the NRC is studying the information and the practice of the NRC is to consider filings made within 30 days of an event timely, this filing is timely.[167]

Addressing the requirements of 2.309(c), the Commonwealth argues that it satisfies the first and most important factor – "good cause" – because it "filed the contention while information is still being released about the accident, and within the same time frame as the NRC's initial study of the implications of the Fukushima accident."[168] As to other factors (all of which are addressed by the Commonwealth), we note that, as to the requirement of 10 C.F.R. § 2.309(c)(1)(vii), the Commonwealth states that "while the Commonwealth's participation may broaden or delay the proceeding . . . , this factor may not be relied on to exclude the contention, because the NRC has a non-discretionary duty to consider new and significant information that arises before it makes its licensing decisions."[169]

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[165] Motion to Admit and Reopen at 3 (citing Thompson Report at 14-18).

[166] Id.

[167] Id. at 4-5.

[168] Id. at 6.

[169] Id. at 8 (citing Marsh v. Oregon Natural Res. Council, 490 U.S. 360 (1989)).

Entergy answers that Commonwealth has not demonstrated good cause for its late filing and the balancing of the remaining factors of Section 2.309(c) does not overcome that failing.[170] Entergy explains that this failure is for the same reasons the contention is not timely under Sections 2.326(a)(1) and 2.309(f)(2) and that the information available from the Fukushima accident is insufficient grounds for lateness.[171] Noting that the Commission grants considerable weight to the seventh and eighth factors in performing the balancing of the remaining factors, Entergy observes that: "With regard to the seventh factor, adding a new contention will, without a doubt, significantly delay and broaden this proceeding, which is already into its sixth year. Indeed, the Commonwealth concedes the point."[172] Similarly, Entergy takes the position that the eighth factor also weighs against admission because, it asserts, Dr. Thompson "is not qualified to opine on the issues raised concerning nuclear operations and PRA analysis."[173] Further, Entergy asserts it has demonstrated that "no materially different result would be likely were the Commonwealth's claims considered."[174] Thus Entergy asserts that this contention fails to satisfy the requirements for admissibility of nontimely contentions.[175]

Staff discussed timeliness in its response to the Section 2.326(a)(i) requirements.[176] The essence of Staff's argument is that, because the information is still developing and incomplete

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[170] Entergy Answer to Waiver Petition and Fukushima Contention at 54. Entergy also addresses the requirements of Section 2.309(f)(2). Id. at 21-22.

[171] Id. at 55.

[172] Id. at 56 (citing Motion to Admit and Reopen at 8).

[173] Id. at 57.

[174] Id.

[175] See id.

[176] NRC Staff Opposition to Fukushima Contention at 13-16.

(by the Commonwealth's own admission), it is premature to bring this contention and it is therefore not timely.[177]

In addition, Staff addresses, in part, the requirements of 2.309(c), although it does not address the dominant "good cause" factor. Staff avers, as to the seventh factor that

> though the Commission does not afford 10 C.F.R. § 2.309(c)(1)(vii) the same amount of weight as the good cause factor, the Commission has placed a significant amount of weight on this factor due to the "policy of expediting the handling of license renewal applications – which rests on the lengthy lead time necessary to plan available sources of electricity." Granting a petition to reopen the record and adding a new contention would "necessarily broaden the issues . . . and delay the proceeding" thus requiring "the reopening [of] a closed administrative adjudicatory record." The Commission found § 2.309(c)(1)(vii) to weigh against the petitioner.
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> . . . .
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> . . . [Furthermore] the information relied on by [the Commonwealth's] Contention is incomplete and raises spent fuel pool accident claims that have already been rejected. The impact of the events at Fukushima on the Commission's policies, procedures and regulations are unknown at this time and a full report by the NRC Task Force addressing this question is imminent. These issues are not susceptible to resolution in an individual license renewal proceeding and could reach a result that is ultimately inconsistent with the Commission's response to Fukushima.
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> Assuming [the Commonwealth] was allowed to litigate the . . . Contention, the Board would be forced to significantly delay the close of this proceeding and set a second, later schedule for litigation of this new contention that would need to address broad policy and legal issues. Without adequate justification, this scenario runs afoul of the Commission's policy of expediency in these types of proceedings. Thus, the addition of the . . . Contention would broaden the issues and unjustifiably delay the proceeding.
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> Regarding the eighth factor, [the Commonwealth] could not contribute to the development of a sound record for the same reasons that it could not satisfy the seventh factor. And, contrary to [the Commonwealth's] arguments on this factor, Dr. Thompson's report does not demonstrate with sufficient detail how the events at Fukushima would materially alter the current Pilgrim SAMA analysis nor has the report identified additional cost-beneficial SAMAs. Therefore, [the Commonwealth's] participation would not contribute to the development of a sound record.[178]

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[177] See id. at 13-14.

[178] Id. at 17-19 (internal citations omitted).

Therefore, asserts Staff, "by failing to present a compelling showing on the seventh and eighth factor, [the Commonwealth] has not satisfactorily met the eight factor balancing test," and the Motion should be denied.[179]

c. The Requirements of 10 C.F.R. § 2.309(f)(1)

The Commonwealth provided the requisite statement of law or fact to be controverted,[180] and supplies the Thompson Declaration, the Thompson Supplemental Declaration and the Thompson Report which go toward satisfaction of the requirements of 10 C.F.R. § 2.309(f)(1)(ii).[181]

As regards the requirements for an admissible contention under 10 C.F.R. § 2.309(f)(1)(iii), the Commonwealth asserts the contention is within the scope of this proceeding because it "seeks compliance with a legal requirement for the re-licensing of the Pilgrim NPP, i.e., consideration of new and significant information that could have an effect on the outcome of the environmental analysis for the Pilgrim NPP."[182]

As regards the requirements for an admissible contention under 10 C.F.R. § 2.309(f)(1)(iv), the Commonwealth asserts that the contention is material to the findings the NRC must make because "some previously rejected or ignored SAMAs may prove to be cost effective in light of the experience of the Fukushima accident."[183]

As regards the requirements for an admissible contention under 10 C.F.R. § 2.309(f)(1)(iv) – (vi), the Commonwealth asserts that there is a genuine dispute of material fact because Dr. Thompson's declarations and report

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[179] Id. at 19.

[180] See 10 C.F.R. § 2.309(f)(1)(i).

[181] Motion to Admit and Reopen at 8.

[182] Id.

[183] Id. at 9.

> demonstrate[] – either conclusively or provisionally – that the environmental impacts of re-licensing the Pilgrim NPP are significantly greater than estimated or assumed by the license applicant and the NRC. Therefore the environmental impact analysis for the Pilgrim NPP should be re-evaluated and the SAMA analysis should be revised to consider mitigative measures that previously may have been ignored or rejected.[184]

Entergy answers that the Commonwealth's contention fails to satisfy the criteria for an admissible contention.[185] To begin, Entergy asserts that Dr. Thompson has not provided the necessary support for the contention to satisfy the requirements of Section 2.309(f)(1)(v) that the petition must provide a concise statement of the alleged facts or expert opinions that support the petitioner's position.[186] In this regard, in addition to the challenges earlier set out by Entergy to the qualifications of Dr. Thompson and to the substance of his report, Entergy asserts:

> First, as previously discussed, the Commonwealth has failed to meet its burden to demonstrate that Dr. Thompson is competent to address the claims raised in his Report concerning nuclear operations, SAMAs, and PRA analysis. Without expert support for its assertions, the Commonwealth's Contention is not viable.
>
> Further, the Thompson Report lacks reference to any source or support for the factual assertions and opinions contained therein. Specifically, Dr. Thompson's "direct experience" CDF calculation is not supported by any source or reference. Despite Dr. Thompson's proclamation that "[t]he probability of severe core damage and an accompanying radioactive release can be estimated in two ways[,]" he provides no reference or citation to any scientific report, study, analysis, peer-reviewed scientific journal article, or any other document of any type to support his bald claim. Dr. Thompson's methodology has never been used for calculating a CDF for PRA applications and is not a scientifically accepted approach. Under well-established NRC precedent, practice and regulatory guidance, PRAs are based on specific reactor and containment design, operating procedures, and site considerations for evaluating overall vulnerabilities, establishing prioritization of potential improvements, and for purposes of making risk-informed decisions. Dr. Thompson's methodology is novel, fails to adhere to any NRC practice and regulatory guidance, fails to account for operating procedures, and fails to take into account site and design differences. In fact, the Report fails to rely on or cite to any legitimate support, practice or procedure whatsoever.[187]

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[184] Id. at 10.

[185] Entergy Answer to Waiver Petition and Fukushima Contention at 57-58.

[186] Id. at 59.

[187] Id. at 59-60 (internal citations and footnotes omitted).

Indeed, Entergy further asserts, citing specific examples regarding consideration of hydrogen explosions and implementation of filtered vented containment) in the present LRA, that the contention fails to demonstrate the existence of a genuine dispute because:

> Despite its numerous claims that the SAMA analysis needs to be redone, the Contention makes no reference or citation to the Pilgrim LRA and the SAMA analysis purportedly challenged here. Under the NRC's Rules of Practice, "a protestant does not become entitled to an evidentiary hearing merely on request, or on a bald or conclusory allegation that such a dispute exists. The protestant must make a minimal showing that material facts are in dispute, thereby demonstrating that an 'inquiry in depth' is appropriate.'"[188]

Next, Entergy asserts (and, as we noted above, we agree) that all portions of the contention addressing issues regarding spent fuel pools are outside the scope of this proceeding, and therefore those portions fail to satisfy the requirements of 2.309(f)(1)(iii).[189] Also outside the scope of this proceeding, Entergy asserts, are challenges to the current licensing basis set out in the Commonwealth's assertions that "potentially cost beneficial SAMAs be incorporated into the plant's design basis; Pilgrim's spent fuel pool be equipped with low density, open-framed racks; and Pilgrim's DTV be equipped with filtered venting using passive mechanisms."[190]

As to Commonwealth's secrecy claim, Entergy avers that the claim fails to satisfy the requirements of 10 C.F.R § 2.309(f)(1)(iv) because it "fails to demonstrate how public disclosure of the mitigative measures put in place after September 11 (referred to also as the EDMG's) is material to the findings the NRC must make" regarding the requested license renewal.[191] Entergy points out that "[t]he Commonwealth cites no regulation or other basis showing that

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[188] Id. at 62-64 (citation omitted).

[189] Id. at 60-61. The Commission stated in CLI-10-11: "Pilgrim Watch raises numerous new claims relating to spent fuel pool fires, and argues that the SAMA analysis is deficient for failing to address potential spent fuel pool accidents. These claims fall beyond the scope of NRC SAMA analysis and impermissibly challenge our regulations." CLI-10-11, 71 NRC at __ (slip op. at 33) (internal citations and footnotes omitted).

[190] Id. at 61 (citing Thompson Report at 17-18, 25-26, 28-29).

[191] Id. at 62.

public disclosure of EDMGs is material to license renewal," and asserts that "public disclosure of the EDMG's is irrelevant to NEPA and certainly has no impact on the outcome of the SAMA analysis."[192]

Staff answers that the contention does not satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(iii) ("[d]emonstrate that the issue raised in the contention is within the scope of the proceeding"), (iv) ("[d]emonstrate . . . the contention is material to the findings the NRC must make"), and (vi) ("provide sufficient information to show that a genuine dispute exists with the applicant/licensee on a material issue of law or fact").[193] Staff also asserts that

> [The Commonwealth] relies on the Thompson Report to challenge the Commission's previous findings excluding issues related to on-site storage of spent fuel under 10 C.F.R. Part 51, Subpart A, Appendix B. As discussed above, claims raised in relation to on-site storage of spent fuel are outside the scope of license renewal.[194]

Further, Staff asserts that

> Until, and unless, [the Commonwealth's] pending Waiver Petition is granted, [the Commonwealth's] claims are not litigable. Accordingly, "secrecy[,"] "operator actions[,"] and "spent fuel pool fires" claims should be dismissed for falling outside of the scope of license renewal. Because the claims are also immaterial to the findings that the Staff must make, the . . . Contention should be dismissed for failing to satisfy 10 C.F.R. § 2.309(f)(1)(iv).[195]

Staff calls to our attention binding precedent holding that:

> Because the record in this proceeding is closed, [the Commonwealth] must set forth the basis of its . . . Contention with "a degree of particularity in excess of the basis and specificity requirements contained in 10 C.F.R. § 2.714(b) [now § 2.309(f)(1)] for admissible contentions." See . . . Oyster Creek I, CLI-08-28, 68 NRC at 668 ("Commission practice holds that the standard for admitting a new contention after the record is closed is higher than for an ordinary late-filed contention."). Support for [the Commonwealth's] Contention must "be more than mere allegations; it must be tantamount to evidence." In other words, the

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[192] Id. at 62 (internal citation omitted).

[193] NRC Staff Opposition to Fukushima Contention at 2.

[194] Id. at 21 (emphasis added).

[195] Id.

> evidence must comport with the requirements for admissible evidence at hearing in § 2.337—it must be relevant, material, and reliable.[196]

Staff in essence, then argues that the evidence supplied by the Commonwealth does not rise to the necessary standard, asserting, for example, that

> [The Commonwealth] bases its contention on the events at Fukushima in Japan, but it does so without establishing the relevance of those events to Pilgrim in Massachusetts. The Thompson Report proposes that a SAMA analysis be re-done based on the Fukushima events, because "[o]ne can reasonably find that the licensee has under-estimated the baseline CDF of the Pilgrim plant by an order of magnitude" based on "the occurrence of five core-damage events over a world-wide experience base . . . ." However, there is no discussion of how the increased CDF factors, based on all the plant experience throughout the world, would generically apply to an individual plant such as Pilgrim. And, the Thompson Report provides no technical analyses that refute the extensive study of plant-specific hazards and risks at Pilgrim and discussed in its FSEIS. As a result, Dr. Thompson has not shown that an increased CDF would materially alter the Pilgrim SAMA analysis.
>
> The Thompson Report proposes that a SAMA analysis that considers station blackout and loss of power scenarios should be done, but as Dr. Ghosh explained in the affidavit "five of the seven potentially cost-beneficial SAMAs identified in the [Applicant's Environmental Report] and as a result of the NRC's SAMA review mitigate the loss-of-power scenarios . . . of which station blackout is a subset." The Thompson Report does not refute the specific findings or make a demonstration of how an increased CDF baseline using his approach would likely result in identification of an additional potentially cost-beneficial SAMA analysis or that additional potentially cost-beneficial SAMAs will result. Therefore, there is no genuine issue in dispute with the license applicant.
>
> The Thompson Report also asserts that filtered venting should be considered in a redone SAMA analysis for Pilgrim. However, the Pilgrim FSEIS did consider filtered venting as a candidate SAMA and it was determined not to be cost-beneficial. And, the Thompson Report does not refute these findings. . . . [Therefore], the Thompson Report does not demonstrate that the issues raised constitute the "heightened" showing of admissibility needed to reopen the record. Because [the Commonwealth] cannot demonstrate a genuine dispute with the applicant, the contention [fails to satisfy the requirements of 2.309(f)(1)(vi) and therefore] is inadmissible.[197]

In its Reply, Commonwealth asserts that this is not the appropriate stage to determine that there is no genuine dispute of material fact by eliminating testimony from Dr. Thompson, noting:

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[196] Id. at 20-21 (some citations omitted).

[197] Id. at 22-23 (emphasis added) (citations omitted).

> In their responses, the NRC Staff and Entergy submit expert declarations to dispute the opinions and analysis put forward by the Commonwealth's expert that, in light of the real world events at Fukushima, certain material inputs or assumptions in Entergy's SAMA analysis are flawed, have produced a SAMA that significantly understates the risk of continued plant operation, and do not take account of additional SAMA analysis which could be identified as potentially cost-beneficial. This dispute of expert opinion and fact is the best evidence that a material dispute exists between the parties on an issue (SAMA analysis) material to relicensing.[198]

3. Ruling on Commonwealth Fukushima Contention

a. The Commonwealth has not satisfied the requirements of 10 C.F.R. § 2.326(a) for reopening the closed record.

The requirements of 10 C.F.R. § 2.326(a)(1). As to the requirement that the motion must be timely,[199] we agree that Commonwealth has filed a pleading respecting information regarding the accident at Fukushima within the timeframe which would be considered timely if all that were at issue were a claim based wholly upon information produced by the Fukushima accident and/or the Near-Term Task Force Report.[200] The Commonwealth asserts, as we mentioned above, that the new information from the Fukushima accident advises that analysis must utilize data respecting the actual occurrence of radiological release rather than the probabilistic analysis used in the present LRA, and the Commonwealth avers that new

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[198] Reply for Waiver Petition and Fukushima Contention at 3 (citation omitted).

[199] We address later the proviso that an exceptionally grave issue may be considered in the discretion of the presiding officer even if untimely presented.

[200] Although the Staff make powerful arguments that the contention is untimely (premature) because information is still being developed from the accident at Fukushima, NRC Staff Opposition to Fukushima Contention at 13-16; the Commonwealth asserts it is compelled to raise this matter now because of the rapidly approaching date of expiration of the existing license for Pilgrim (or, conversely, the date for commencement of a license renewal term, if the renewal is granted). Fukushima Contention at 4 n.6. All parties recognize that information is continuing to be developed and that it would be preferable to await more complete information. And, we must be cognizant of the Commission's view, stated in this proceeding when it ruled on the petitions to suspend licensing activities, that it is unnecessary to cease current licensing activities at this juncture because it has authority to, and will address, these matters with future rulemaking and requirements to be applied to then-operating plants if the information it obtains from the Fukushima accidents so warrants. See Callaway, CLI-11-05, 74 NRC at __ (slip op. at 25-26).

information is now available regarding the probability of core melt, station blackout duration, the effectiveness of mitigation measures (including the potential benefits of filtered containment venting), and the import of spent fuel accidents.[201]

Connecting these events to Pilgrim, Commonwealth asserts that the assumptions used in the Pilgrim SAMA analyses are demonstrated to be in error by the facts of the Fukushima accident and three other core-damaging events which have occurred at commercial power reactors worldwide (i.e., by its "direct experience" information).[202] To begin our analysis of the timeliness question and the relevance of the Fukushima-derived information to the present proceeding, we note that, as the IAEA Mission Report and the Japanese Government Report (referred to above) make clear, the root cause of the accident at Fukushima was the beyond-design-basis earthquake that caused the beyond-design-basis Tsunami which resulted in a beyond-design-basis duration of station blackout. The Commonwealth indicates no linkage whatsoever between these events and the potential for a beyond-design-basis duration of station blackout at Pilgrim. Therefore the Commonwealth proffers no new information relevant to the Pilgrim plant regarding station blackout or mitigation measures implemented at Pilgrim to prevent or ameliorate the effects of station blackout. Thus there is no new information respecting Pilgrim regarding those two matters, and it therefore cannot form the basis for an assertion of timeliness for the purposes of Section 2.326.

As we held above, spent fuel accidents are outside the scope of this proceeding; there is, therefore, no relevance to this proceeding of assertions regarding spent fuel accidents, and they cannot form the basis for the timeliness considerations.

Thus we turn to the remaining information asserted to be new and relevant to the Pilgrim SAMA: the Commonwealth's "direct experience" arguments that new information from the

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[201] See Motion to Admit and Reopen at 3 (citing Thompson Report at 14-18).

[202] Fukushima Contention at 6.

accident at Fukushima demonstrates that the actual frequency of occurrence of radiological release is considerably higher than the frequency used in the probabilistic analysis set out in the present Pilgrim LRA. Use of this new information, the Commonwealth asserts, could cause revised SAMA analysis to show that other mitigation measures are cost effective for Pilgrim. But as we discussed above, the Commonwealth's assertion is based upon the occurrence of several core-damaging events that have occurred worldwide – not singularly upon information derived from the Fukushima accidents – and two of the accidents forming the foundation for that argument occurred decades ago. Further, the Commonwealth mixes this argument with the assertion that the core damage frequency (CDF) is demonstrated by those accidents to be considerably larger than the numerical values used in the Pilgrim SAMA analysis, but neither challenges any of the scenario-specific CDFs used in the Pilgrim probabilistic safety assessment (PSA) nor provides any explanation or discussion of how its "direct experience" methodology would or could be used to develop a spectrum of CDFs for the variety of scenarios of core damaging event sequences examined at Pilgrim or elsewhere.[203] Thus, to begin with, the Commonwealth's claim has a fatal flaw; it fails completely to indicate how this "direct experience" leads to any data affecting the CDFs for the Pilgrim plant. As Entergy's arguments make consummately clear, the Commonwealth makes no linkage between the macroscopic observation of the overall frequency of material offsite radiological release for nuclear power

[203] The Commonwealth's assertions, as well as those of Dr. Thompson, simply fail to discuss (let alone challenge analysis in the LRA), the use of Core Damage Frequencies for any of the Fukushima Daichi plants or the Pilgrim plant. But, as the LRA demonstrates, CDFs must be developed for the entire spectrum of core damaging events, ranging from those that do minimal damage to those that involve massive core melting such as occurred in the TMI-2 accident, and there is nothing presented by Commonwealth's assertions or the Thompson Report or Affidavits from which we could even infer a relationship between the macroscopic observations from Fukushima, their assertions of massive errors in CDF, and the analysis methodologies used in any SAMA analysis (including that specifically used for Pilgrim). Similarly, the Commonwealth's approach fails to address linkage between core damage and containment failure which is necessary to result in release of radiation to locations offsite, and to discuss how the initiating events at Fukushima (earthquake followed by tsunami, resulting in station blackout) can be expected to occur at Pilgrim, or how those events, if they did occur at Pilgrim, might result in offsite radiation release at Pilgrim.

plants worldwide and the event sequence analysis employed in the Pilgrim SAMA analysis.[204] For this reason, the Commonwealth's contention fails to indicate any new information respecting the Pilgrim plant. As Entergy's arguments make plain, the information that the use of probabilities based upon the use of actual macroscopic frequency of occurrence of offsite radiological release would lead to considerably higher probabilities for severe accidents than those used in the Pilgrim SAMA analysis is not new and is in large part based upon the occurrence of previous core-damaging events. As Entergy points out, the use of that approach would have led, based upon earlier events, to a computed frequency of occurrence of 1.6 E-04 (which is well above the threshold for events that must be considered in the plant's licensing basis) prior to the occurrence of the Fukushima accident.[205] Thus the issue of whether the "direct experience" method for estimating a macroscopic frequency of occurrence of a severe offsite radiological release from a core damaging accident should be used in the Pilgrim SAMA analysis could have been raised at the time of the submittal of the original LRA[206] – the only difference that would be attributable to information arising out of the Fukushima accident is that the macroscopic frequency of occurrence would be a different (but lower) value after the

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[204] The Pilgrim SAMA analysis is a probabilistic safety analysis whereby probabilities are developed and assigned to each event in the series and those are utilized, in connection with all other event series analyzed, to develop overall release probabilities.

[205] Entergy Answer to Waiver Petition and Fukushima Contention at 22-23.

[206] Entergy points out – based upon a simple computation that is not disputed and therefore cannot be said to be the subject matter of a "battle of experts" (and as to which it cannot be said we are weighing evidence) – that

> at the time the initial opportunity for hearing was announced, the direct experience method would have revealed a CDF of 1.6E-04 per reactor year, or five times more than that assumed in the Pilgrim SAMA analysis. Under Dr. Thompson's rationale, the Pilgrim SAMA analysis CDF has been deficient since the outset of the proceeding . . . .

Id. at 23.

Fukushima accident than before it. We agree with Entergy that a challenge on the basis that the Pilgrim SAMA analysis should have used a "direct experience" method (employing actual macroscopic, as opposed to theoretical frequencies of occurrence[207]), could (and therefore should) have been raised ab initio,[208] and therefore is not timely now.

Since the foundation for everything raised by this contention being relevant to this proceeding is the charge that the frequency of occurrence of severe accidents is erroneously underestimated, and that challenge should have been raised at the outset of this license renewal proceeding, we find that the Commonwealth's contention fails to satisfy the requirements of 10 C.F.R. § 2.326(a)(i) as to being timely filed.

Thus, we turn to consideration of whether the challenge raises an "exceptionally grave issue." The Commonwealth does not point us to any definition of when an issue is exceptionally grave, but Entergy points to a plain definition of the phrase set out in the Commission's final rule regarding the standards for reopening a closed record: "'exceptionally grave' means 'a sufficiently grave threat to public safety.'"[209]

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[207] Although not explicitly developed, this assertion of a theoretical probability in essence amounts to an assertion that the probability of occurrence of a severe accident developed via PSA techniques because it is based upon, in part, information for the probabilities of specific events in the chain of events analyzed as to which there is not experimental or experiential data, the overall probability of the severe accident is "theoretical." In our view, this is an attempt to compare apples and bricks; the overall macroscopic observation that there have been a certain numerical value of occurrences of severe accidents for all operating reactors worldwide is simply not comparable to the rigorous event chain analysis whereby probabilities are determined for each such event in the chain and then a wide range of possible event sequences are analyzed to develop an overall probability of occurrence of severe accidents.

[208] Entergy succinctly puts it as follows: "If the CDF assumed by the Pilgrim SAMA analysis is 'unrealistically low' after the Fukushima accident under Dr. Thompson's direct experience method, it was also unrealistically low long before Fukushima." Id. at 22.

[209] Id. at 27 (quoting Criteria for Reopening Records in Formal Licensing Proceedings, 51 Fed. Reg. 19,535, 19,536 (May 30, 1986)) (omitted Entergy's emphasis).

Dr. Thompson states in paragraph 15 of his Declaration that he

> believe[s] the Commonwealth's contention addresses exceptionally grave environmental issues, for three reasons. First, the Fukushima accident shows that a severe reactor and/or spent-fuel-pool accident is significantly more likely than estimated or assumed in the NRC's current environmental analyses for the Pilgrim NPP. Second, the experience of the Fukushima accident shows that the accident mitigation measures relied on by the NRC are grossly inadequate to prevent the type of catastrophic damage at Pilgrim that has occurred at Fukushima. Finally, the Fukushima accident shows how corrosive and dangerous is the high level of secrecy that the NRC has maintained with respect to accident mitigation measures, thereby contributing to the use of ineffective measures at Fukushima.[210]

But Dr. Thompson's reasons for his belief fail completely to implicate any particularized threat to public safety at the Pilgrim plant; they fail to offer any specific information that is applicable to, or connects the Fukushima accidents to, the Pilgrim plant, and merely point to reasons why he believes consideration of information from the Fukushima accident would lead to revisions to the Pilgrim SAMA analysis that, in turn, could lead to other SAMAs becoming cost effective. Dr. Thompson's statements respecting the impact of the information from Fukushima are bare and unsupported, and therefore speculative; they cannot provide the requisite support for reopening a closed record.[211]

We agree with Entergy and Staff that nothing averred by the Commonwealth, and nothing set out in the Declarations of Dr. Thompson, or in the Thompson Report, supports a proposition that the failure to consider the information from the accident at Fukushima raises any grave threat to public safety respecting the Pilgrim plant. Indeed, the Commission pointed out in ruling on the petitions to suspend all proceedings pending completion of its review of the events at Fukushima that it perceived no necessity to do so because it has other effective and

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[210] Thompson Declaration ¶ 15.

[211] Further, these statements are also precisely the sort of "speculation" that the Commission found insufficient support for the petitioners' request that licensing decisions be put on hold until the Commission has completed its Fukushima studies and developed appropriate information. Callaway, CLI-11-05, 74 NRC at __ (slip op. at 26-28).

timely mechanisms for implementation of modifications to regulations and plant requirements.[212] Thus we find that the Commonwealth contention fails to present any "exceptionally grave issue."

For the foregoing reasons, we find that the Commonwealth contention is inadmissible for failure to satisfy the requirements of 10 C.F.R. § 2.326(a)(1).

Notwithstanding the foregoing finding, we address each of the other admissibility criteria.

The requirements of 10 C.F.R. § 2.326(a)(2). As to whether the Commonwealth has satisfied the requirement that the motion must address a significant safety or environmental issue, determination hinges upon the definition of when a safety or environmental issue is "serious" enough to warrant reopening a closed record. The Commonwealth argues that the issue of potential cost-effectiveness of other severe accident mitigation alternatives rises to that level of seriousness because: (a) NEPA requires the NRC to take a hard look at environmental matters;[213] and (b) the SAMA is an alternatives examination performed by the Agency in fulfillment of its obligation under NEPA; and (c) the Council on Environmental Quality (CEQ)

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[212] See, for example, the text accompanying notes 44-45 above, wherein we noted the Commission's view on this matter. The Commission further stated: "[W]e do not believe that an imminent risk will exist during the time period needed to apply any necessary changes to operating plants, whether a license renewal application is pending or not." Callaway, CLI-11-05, 74 NRC at __ (slip op. at 27). The Commission later stated: "Even for the licenses that the NRC issues before completing its review, any new Fukushima-driven requirements can be imposed later, if necessary to protect the public health and safety." Id. at __ (slip op. at 29) The Commission also stated:

> [W]e directed the Task Force to consider stakeholder input in the development of its recommendations. There will be further opportunities for stakeholder input as the agency's review proceeds, and public and stakeholder participation will be sought consistent with the established processes for any actions that we direct the NRC Staff to undertake.

Id. at __ (slip op. at 37). And the Commission emphasized its view that it can and will make appropriate adjustments to regulatory requirements again in its recent ruling in Diablo Canyon. Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC __, __ (slip op. at 44) [hereinafter Diablo Canyon].

[213] See Reply for Waiver Petition and Fukushima Contention at 7.

recognizes consideration of alternatives "'is the heart of the environmental impact statement'",[214] and (d) the NRC's Severe Reactor Accidents Policy Statement commits the Commission to "take all reasonable steps to reduce the chances of occurrence of a severe accident involving substantial damage to the reactor core and to mitigate the consequences of such an accident should one occur."[215]

Staff avers that the Commission has not explicitly set out a standard for when an environmental issue is significant enough to satisfy this requirement for reopening, but points us to an Atomic Safety and Licensing Appeal Board ruling that held that to demonstrate a significant safety issue, petitioners "'must establish either that uncorrected . . . errors endanger safe plant operation, or that there has been a breakdown of the quality assurance program sufficient to raise legitimate doubt as to the plant's capability of being operated safely.'" [216]

However Entergy has pointed out that the Commission has indeed expressed the standard for when an environmental issue is "significant" for the purposes of reopening a closed record, equating them to its standards for when an EIS is required to be supplemented - there must be new and significant information that will "paint a 'seriously different picture of the environmental landscape.'"[217]

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[214] See Id. (quoting 40 C.F.R. § 1502.14). In this respect, we note that "longstanding [Commission] policy is that the NRC, as an independent regulatory agency, 'is not bound by those portions of CEQ's NEPA regulations' that . . . 'have a substantive impact on the way in which the Commission performs its regulatory functions.'" Diablo Canyon, CLI-11-11, 74 NRC at __ (slip op. at 23).

[215] See Reply for Waiver Petition and Fukushima Contention at 7-8 (quoting Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants, 50 Fed. Reg. 32,138, 32,139 (Aug. 8, 1985)).

[216] NRC Staff Opposition to Fukushima Contention at 10-11 (quoting Public Service Company of New Hampshire (Seabrook Station, Units 1 and 2), ALAB-940, 32 NRC 225, 243 (1990).

[217] Entergy Answer to Waiver Petition and Fukushima Contention at 28 (quoting Private Fuel Storage II, CLI-06-03, 63 at 29 (holding that claimed additional environmental impacts were "not so significant or central to the FEIS's discussion of environmental impacts that an FEIS

(continuing . . .)

Here, the Commonwealth points to no environmental impact that would, or even might, arise from the failure to revise the SAMA analyses to consider information it asserts arose from the Fukushima accident. Rather, the Commonwealth avers that other SAMAs might become cost effective if implemented – but indicates neither any particular positive environmental impact from any such implementation nor any specific negative environmental impact from failure to do so. The Commonwealth's contention can hardly be said, therefore, to paint the required "seriously different picture of the environmental landscape."[218] And neither the speculation by the Commonwealth and Dr. Thompson to the effect that other SAMAs might become cost effective and that an operator's mitigative actions could be adversely affected by an accident environment, nor the Commonwealth's intimations regarding other potential alterations that might result from consideration of the Fukushima-derived information, can serve to bootstrap the contention into raising any such different environmental situation.[219] The Commonwealth's claims simply implicate no specific environmental impact changes.

For the foregoing reasons, we find that the Commonwealth contention is inadmissible for failure to satisfy the requirements of 10 C.F.R. § 2.326(a)(2).

(. . . continued)
supplement (and the consequent reopening of our adjudicatory record) is reasonable or necessary").

[218] Indeed the Commission reaffirmed its view of the appropriate threshold when it stated, in CLI-11-05, that the measure is "'[t]he new information must present a seriously different picture of the environmental impact of the proposed project from what was previously envisioned,'" concluding, as do we, that "[t]hat is not the case here, given the current state of information available to us." Callaway, CLI-11-05, 74 NRC at __ (slip op. at 31) (quoting Hydro Resources, Inc. (2929 Coors Road, Suite 101, Albuquerque, NM 871200), CLI-99-22, 50 NRC 3, 14 (1999)).

[219] As the Commission has oft repeated, and noted respecting the various petitioner assertions regarding information presently available from Fukushima, "our rules deliberately place a heavy burden on proponents of contentions, who must challenge aspects of license applications with specificity, backed up with substantive technical support; mere conclusions or speculation will not suffice . . . [and an] even heavier burden applies to motions to reopen." Id. at __ (slip op. at 33).

The requirements of 10 C.F.R. § 2.326(a)(3). As to the requirement that the motion must demonstrate that a materially different result would be or would have been likely had the newly proffered evidence been considered initially, the "result" at issue in this proceeding is the outcome of the SAMA analysis.[220] The Commonwealth asserts that a materially different result would be likely because the NRC would have considered a much broader array of SAMAs, but offers only the bare conclusory statement of its expert to support its assertion, and such unsupported claims do not rise to the requisite level.[221] Notwithstanding its assertions that installation of a hardened vent or a filtered vent for the containment might become cost effective,[222] the Commonwealth simply offers nothing which can reasonably be interpreted to "demonstrate" that other SAMAs would have been considered. To do so would have, at least, required the Commonwealth to provide some information indicating how much the mean consequences of the severe accident scenarios could reasonably be expected to change as a result of consideration of the Fukushima-derived information the Commonwealth proposes would alter the outcome of the cost-benefit balancing, together with at least some minimal information as to the cost of implementation of other SAMAs it believes might become cost effective. This is not to say that the Commonwealth must prove its case at this point, but simply that the term "demonstrate" requires much more than the bare speculation and bare assertions

[220] In this case, the Commonwealth asserts that the different result it believes would be obtained is the consideration of other mitigation alternatives, Motion to Admit and Reopen at 11 – and we find that to be the appropriate measure for this case. We decline to make the overbroad determination that the "materially different result" is simply that the NRC would have considered the information from the Near-Term Task Force Report or the information that was presently available from the accidents at Fukushima in preparation of its SAMA analysis. To so require would elevate form over substance.

[221] Id. (citing Thompson Declaration ¶ 16 and Thompson Report § VI).

[222] See id.

offered by the Commonwealth.[223] And Dr. Thompson's assertions regarding hydrogen explosions, operator actions and mitigative procedures and measures not only fail to address the actual consideration of those matters in the LRA, but fail to indicate how those would be affected by consideration of the proposed new information. Thus none of the information provided by either the Commonwealth or its expert, Dr. Thompson, demonstrates that any different result of the Pilgrim SAMA analysis could be obtained by consideration of the asserted new information.

The Commonwealth's contention has not demonstrated that a materially different result would be or would have been likely had the newly proffered evidence been considered initially. We agree with Entergy and Staff that there is only speculation without any demonstration whatsoever that the results of the SAMA analysis would have been, or would have been likely to be, different had the information presented by Commonwealth regarding the Fukushima accident been considered.

For the foregoing reasons, we find that the Commonwealth contention is inadmissible for failure to satisfy the requirements of 10 C.F.R. § 2.326(a)(3).

The requirements of 10 C.F.R. § 2.326(b). This portion of our regulations requires that the motion must be "accompanied by affidavits that set forth the factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of this section have been satisfied. . . . [and that] [e]ach of the criteria must be separately addressed [in that affidavit], with a specific explanation of why it has been met." We find that the Declaration of Dr. Thompson fails to specifically explain, to the level required by the provisions of Section 2.326(b), two

[223] The Commission recently discussed its view that the required level of demonstration by petitioners of cost effectiveness of other SAMAs is case and issue specific. Diablo Canyon, CLI-11-11, 74 NRC at __ (slip op. at 19-21). In our view, the issue sought to be litigated here requires considerably more than the bare speculation offered by petitioner.

factors: (1) why a materially different result would have been likely had the information presently available from the Fukushima accident been considered ab initio in the Pilgrim SAMA analysis, or (2) why that information presents "a significant safety or environmental issue."[224]

As to the likelihood that a materially different result would be obtained, Dr. Thompson's Declaration states, in relevant part:

> As discussed in my Report at Section VI, I believe that a materially different result would be likely if the NRC were to thoroughly consider the implications of the Fukushima accident in its environmental analyses for the Pilgrim NPP. In particular, I believe that the NRC would consider a much broader and more rigorous array of severe accident mitigation alternatives (SAMAs) than have been previously considered, including systems for hydrogen control, containment venting, and replacement of high density spent fuel storage racks with low-density, open-frame racks. Also, in view of the high risk of a radioactive release at Pilgrim, any accident-mitigation measure or SAMA that is credited for the future licensed operation of the Pilgrim NPP should be incorporated in the plant's design basis.[225]

But this sets out no factual or technical basis; it merely represents a statement of belief on the part of Dr. Thompson. It fails to recognize or address the methodology by which the probabilities of the various chains of events are developed and it fails to discuss how those methodologies might (let alone should) be adapted to utilize the macroscopic information it terms "actual" probabilities of the occurrence of severe accidents that is available from worldwide macroscopic experience. It makes no reference to, and presents no discussion of, how the Pilgrim (or any other) SAMA analysis is performed or how it could be expected that the mean consequences of the spectrum of accident scenarios analyzed for Pilgrim in its SAMA analysis could be so altered as to make additional SAMAs cost effective to implement. Although Dr. Thompson mentions other mitigative mechanisms that he believes would be

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[224] We note that Entergy and Staff have raised material issues regarding the qualifications of Dr. Thompson and the validity of the methodology he proposes be used. Because of our findings regarding the substance of the Commonwealth's arguments and Dr. Thompson's statements, we find it unnecessary to address those issues.

[225] Thompson Declaration ¶ 16.

considered, he fails to address their cost – and that is integral to providing a factual or technical basis for the assertion because the present Pilgrim SAMA analysis (which is set out in the LRA), plainly indicates both the cost of the most costly implemented SAMA and that the next most costly not-implemented SAMA that was considered has a cost approximately twice the most costly one that was implemented.[226] To provide a factual basis for the assertion that a materially different result would be obtained requires a comparison of at least estimates of the costs of implementation of the mitigative mechanisms Dr. Thompson suggests might have been considered to the stated costs of implemented SAMAs.[227] And to perform the analysis would require information regarding how much the mean consequences would be altered by consideration of the facts Dr. Thompson asserts are available from the Fukushima accident, because that provides the foundation for the numerical value for the "benefit" against which the cost must be balanced. In particular, Dr. Thompson asserts that there are facts regarding the CDF and the likelihood of hydrogen explosion that should be incorporated in the SAMA analysis, but he fails to even speculate as to how (or how much) those might alter the

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[226] E.g., Exh. ENT000001, Testimony of Dr. Kevin R. O'Kula and Dr. Steven R. Hanna on Meteorological Matters Pertaining to Pilgrim Watch Contention 3 (Jan. 3, 2011) at A47.

[227] We reject the premise that the Agency has an obligation under NEPA to consider effects of the accidents at Fukushima when there has been no linkage made between those events and the plant whose license is at issue in this proceeding. While NEPA requires the Agency to "take a hard look" at environmental effects of its pending decision, we see nothing raised here that implicates any environmental impact. Further, although the NRC performs its SAMA analysis in fulfillment of its obligations under NEPA, the mitigation alternatives it examines in its SAMA cost benefit analyses all regard severe accident events which are beyond the design basis of the plant, and therefore have annual probability of occurrence of less than one in a million per year. We note that the NRC more than a decade ago declined to label such events as remote and speculative, which would result in their not being required to be considered under NEPA, because the NRC felt at the time it did not have the database to so determine. But it appears to us that by requiring any chain of events that has an annual frequency of occurrence greater than one in a million to be included within the design basis, the Commission has *de facto* made the frequency of occurrence of all other events (including those resulting in severe accidents) to be less than one in a million per year – a value so low as to certainly not be "reasonably foreseeable" (which would require such events to be considered under NEPA) but also to be reasonably considered remote and speculative in this context.

consequences of the probabilistic computation of the consequences from the entire spectrum of severe accidents considered in the Pilgrim SAMA analysis. And those facts/costs are critical to the basis for his speculation. Thus, we find his Declaration fails to provide the requisite factual and/or scientific basis for the claim that a materially different result would have been likely.

In addition, Dr. Thompson states in his Declaration, as to whether the information available from the Fukushima accident presents a significant safety or environmental issue, the following:

> I also believe the Commonwealth's contention addresses exceptionally grave environmental issues, for three reasons. First, the Fukushima accident shows that a severe reactor and/or spent-fuel-pool accident is significantly more likely than estimated or assumed in the NRC's current environmental analyses for the Pilgrim NPP. Second, the experience of the Fukushima accident shows that the accident mitigation measures relied on by the NRC are grossly inadequate to prevent the type of catastrophic damage at Pilgrim that has occurred at Fukushima. Finally, the Fukushima accident shows how corrosive and dangerous is the high level of secrecy that the NRC has maintained with respect to accident mitigation measures, thereby contributing to the use of ineffective measures at Fukushima.[228]

This also is in the nature of a statement of belief, and omits to provide facts or scientific explanation that can logically support his conclusory statement of belief that failure to include the information he asserts is now revealed by the Fukushima accident creates an exceptionally grave environmental issue. The question of what threshold is required to create an "exceptionally grave" environmental issue has been discussed by the Parties, and we are not persuaded by the Commonwealth's view that the fact that consideration of alternatives is a very important requirement of NEPA[229] somehow elevates the issue raised here to a "grave" issue.

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[228] Thompson Declaration ¶ 15.

[229] The Commonwealth asserts that:

> According to the Staff, a SAMA analysis "has no direct safety or environmental significance" because it "merely augments existing programs to identify mitigation alternatives that could 'further reduce the risk at a plant that ha[s] no identified safety vulnerabilities.'" The Staff's position that SAMAs are legally insignificant is incorrect as a matter of law. As the Council on Environmental Quality (continuing . . .)

Indeed the Commonwealth offers nothing to indicate that there is anything "grave," or any potential grave environmental issue, associated with the possibility that there might turn out to be other alternatives (plant alterations) that would be cost effective to implement to ameliorate effects of accidents that are beyond the design basis.[230] The Commonwealth has offered no link, and Dr. Thompson offers no link, between the issues it or he raises and an environmental issue associated with the implementation (or lack of implementation) of any Severe Accident Mitigation Alternative. Severe accidents are, by their very definition, beyond the design basis of the plant. If the Commonwealth intended to challenge the design basis by its assertions that the probability of a severe accident is much higher than is assumed for the purposes of the NRC's required SAMA analyses, such a challenge would have been inadmissible in (because a challenge to NRC regulations is outside the scope of) this proceeding. If that is not the Commonwealth's challenge, then this Declaration (and its accompanying Report) fails to provide the requisite factual and/or scientific basis for the claim that a grave environmental issue is raised by the Motion.

(. . . continued)

> recognizes, consideration of alternatives "is the heart of the environmental impact statement." Consistent with NEPA's requirement to consider alternatives, the NRC's Severe Reactor Accidents Policy Statement commits the Commission to "take all reasonable steps to reduce the chances of occurrence of a severe accident involving substantial damage to the reactor core and to mitigate the consequences of such an accident should one occur."
>
> Moreover, the Staff misses the point of the Commonwealth's contention, which is that new information shows the existence of previously unconsidered accident vulnerabilities that increase the environmental impacts of re-licensing Pilgrim and therefore the outcome of the cost-benefit analysis of alternatives.

Reply for Waiver Petition and Fukushima Contention at 7-8 (internal citations omitted).

[230] We note that Commonwealth has observed the Near-Term Task Force Report's suggestion that some severe accidents should be included in the design basis, Motion to Supplement at 5, but that result must await scientific investigation and its outcome.

For the foregoing reasons, we find that the Declaration of Dr. Thompson fails to provide the requisite factual and/or technical bases for the movant's claim that the criteria of paragraph (a) of section 2.326 have been satisfied.

b. The Commonwealth has not satisfied the requirements for a Non-Timely filed Contention set out in 10 C.F.R. § 2.309(c)

The Commonwealth bases its assertion that it satisfies the requirements of 2.309(c)(i) (good cause) because it filed its contention while information about the accident is continuing to be released.[231] However, the actual singular foundation for this new contention is the argument (discussed with respect to 2.326(a)(1) and below respecting 2.309(f)(2)(ii) and (iii)) based upon worldwide "direct experience" regarding the overall (macroscopic) frequency of occurrence of core damaging accidents. But, as we discussed above, this foundational argument does not rest upon new and materially different information made available anew by the accident at Fukushima. The Commonwealth could (and should) have filed this contention at the outset of this proceeding. Thus we find that this contention fails to satisfy the good cause requirements of 2.309(c)(i).

In addition, balancing the remaining factors of 2.309(c), we are persuaded that the addition of a hearing on the subject matter of this contention will unduly broaden the issues presently being considered[232] and undoubtedly materially delay this proceeding. Thus we find that factor (vii) weighs heavily against granting admission of this contention.

For the foregoing reasons, we find that the contention fails to satisfy the requirements of 10 C.F.R. § 2.309(c).

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[231] Motion to Admit and Reopen at 6.

[232] This is particularly evident given the status of this proceeding was, at the time this contention was submitted, simply to address the narrow portion of Pilgrim Watch's Contention 3 remanded to us, as to which we have already issued a definitive ruling, and address five new contentions filed by Pilgrim Watch since the remand, all of which were previously resolved or are resolved by this Order.

c. The Commonwealth's Proposed Contention fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(1) and 10 C.F.R. § 2.309(f)(2) and therefore is inadmissible even if the requirements for reopening had been met.

To begin with, we find that material portions of this contention (challenges to spent fuel pools, challenges to the NRC's assumptions about operators' capability to mitigate an accident at the Pilgrim, challenges to EDMGs, challenges to the NRC's excessive secrecy regarding accident mitigation measures, challenges to the NRC's previous rejection of the Commonwealth's concerns regarding the environmental impacts of high-density pool storage of spent fuel, assertions of a need to implement filtered vented containment, and suppositions/speculation regarding the effectiveness of hydrogen control mechanisms) all fall outside the scope of this proceeding and therefore are inadmissible because they fail to satisfy the requirements of 2.309(f)(1)(iii).

Thus all that remains to consider in the Commonwealth's contention are the assertions respecting the CDF and its potential impact upon the SAMA cost-benefit balancing.[233] As to the requirements of 2.309(f)(1)(iv), the only possible relevance of this contention to the findings the NRC must make regards the SAMA cost benefit analysis.[234] But the Commonwealth has made only the bare speculation (supported by a similar speculation on the part of its expert) that they believe that "the NRC would consider a much broader and more rigorous array of severe accident mitigation alternatives (SAMAs) than have been previously considered."[235] This plainly

[233] As we noted above, Commonwealth's assertions regarding the cost effectiveness of mitigation mechanisms, as well as effectiveness of operation or operability of the DTVs, are necessarily resultant from the core-damaging event premise.

[234] As we noted above, we decline to find that the "determination the NRC must make" is a determination to consider, under NEPA, information presently available from the accidents at Fukushima or from the Near-Term Task Force Report. The NRC's determination at issue here is solely that of which SAMAs are cost beneficial to implement for this plant. If and when Fukushima-derived information sheds new light on the Pilgrim SAMA analysis, the NRC has adequate mechanisms for addressing its regulatory impact.

[235] Motion to Admit and Reopen at 11.

fails to satisfy the requirement of 2.309(f)(1)(iv) that the contention must "demonstrate" that the issue raised is material to the NRC's decision; the speculative assertions of the Commonwealth and its expert simply do not rise to the level of demonstrating the matter. Therefore we find that the Commonwealth's contention fails to satisfy the requirements of 2.309(f)(1)(iv).

Finally, as to the requirements of 2.309(f)(1)(vi), we find that neither the Commonwealth's pleadings nor the Declaration and Report of Dr. Thompson shows that a genuine dispute exists with the applicant on a material issue of law or fact. First, for the fact to be "material," it must affect the NRC's SEIS as it relates to SAMAs, and neither the Commonwealth nor Dr. Thompson has indicated with any specificity how the SAMA analysis results could be affected. Rather the pleadings speculate as to changes that might be found, and we find that fails to provide the requisite sufficient information that would "show" a dispute. Further, neither the Commonwealth nor Dr. Thompson point to or reference any specific portion of the application that is disputed, simply asserting that the SAMA results might be different, and neither indicates any method by which the macroscopic data on the worldwide frequency of occurrence of core-damaging events might be utilized to modify the event-chain analyses used by Pilgrim in its SAMA analysis. The bare assertions based upon the "actual" (macroscopic) information, that the CDFs are erroneous simply does not provide the requisite link to the Pilgrim plant or the SAMA analysis performed for it. If the Commonwealth and Dr. Thompson meant, in the alternative, to point to an omission of consideration of data from the SAMA input, as they might have intended to imply in their reply,[236] they are certainly capable of so doing and have failed.[237] From either perspective, the Commonwealth's contention fails to satisfy the requirements of 2.309(f)(1)(vi).

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[236] See Reply for Waiver Petition and Fukushima Contention at 3.

[237] The situation here is directly analogous to that addressed by the Commission in its very recent ruling respecting a challenge raised in the license renewal application for Diablo Canyon. There the Commission held:

(continuing . . .)

For the foregoing reasons, we find that the Commonwealth's Proposed New Contention fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(1) and therefore is inadmissible even if the requirements for reopening and for filing of a non-timely contention had been met (which we found were not).

Finally, had the requirements of 10 C.F.R. § 2.326 respecting reopening a closed record been, as the Commonwealth asserts, inapplicable, the requirements of 10 C.F.R. § 2.309(f)(2) would have applied. As to the requirements of 10 C.F.R. § 2.309(f)(2)(i), the Commonwealth asserts that the new information is derived from the Fukushima accident, and because such information was not previously available, this requirement would have been satisfied.

As to the requirements of 10 C.F.R. § 2.309(f)(2)(ii) that the information on which the contention is based is materially different than information previously available, as we noted above the Commonwealth asserts a material difference because their new contention is based primarily on the actual occurrence and experience of a radiological accident, as contrasted with predictions of the behavior of an accident based on probabilistic risk assessment. The Commonwealth asserts this to be materially different from information that was available at the outset of this license renewal – particularly with respect to the predominant assertion by the Commonwealth that the Fukushima accident provides new information that the CDF used in the Pilgrim SAMA analysis was erroneously low because it failed to use actual experience on the occurrence of severe accidents worldwide. We disagree. For the reasons set out in our ruling on 2.326(a)(1), we find that the contention does not rest upon new materially different

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(. . . continued)

> Even assuming that [petitioner] intended to challenge the discussion of mitigation measures in PG&E's Environmental Report, [petitioner]'s unsupported statement . . . falls short of the information required to show the existence of a genuine dispute. . . . It is [petitioners]'s responsibility . . . to put others on notice as to the issues it seeks to litigate in the proceeding. We should not have to guess the aspects of the SAMA analysis that [petitioner] is challenging.

Diablo Canyon, CLI-11-11, 74 NRC at __ (slip op. at 42) (internal footnotes omitted).

information that is timely presented (because the challenge respecting actual vs theoretical CDF should have been raised at the outset based upon information from events that occurred well before the accidents at Fukushima). Therefore, this contention fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(2)(ii).

As to the requirements of 10 C.F.R. §§ 2.309(f)(2)(iii) that the contention be filed in a timely fashion based on the availability of the subsequent information, the Commonwealth asserts that, while it might have been preferable to await a more full understanding of the information presently becoming available continuously from the evolving situation at Fukushima, there is sufficient information upon which to proceed to challenge the SAMA analysis for Pilgrim. Staff takes the view that because the information is continuing to be developed it is premature to litigate the effects and therefore the contention is not timely. As with the requirements of 10 C.F.R. § 2.309(f)(2)(ii), we find that, because the single kernel upon which this contention rests is the premise that Entergy and Staff should use "direct experience" for severe accident probabilities,[238] and that the direct experience demonstrates the CDF probabilities used in the Pilgrim SAMA analyses are too low, since the same direct experience would plainly have permitted precisely the same challenge at the outset of this proceeding, the new information put forth by the Commonwealth is not materially different from the corresponding information available at the outset of this proceeding.[239]

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[238] It is apparent that, in performance of SAMA analysis, the weighting of the consequences of any severe accident, and the sort of mitigation measures (such as operator activation of the DTVs) that might be effectively deployed to address such accidents, are directly and singularly dependent upon the particular probabilities used in the SAMA analysis for the particular scenarios. Thus, if the probabilities are incorrect, the contribution of the consequences will be inaccurate and the effectiveness of other mitigation measures will be altered. And, stated in the inverse, unless the probabilities are in error, the effectiveness of various mitigation mechanisims will not be called into question.

[239] In this regard, the Commonwealth now asserts that "the Staff misses the point of the Commonwealth's contention, which is that new information shows the existence of previously unconsidered accident vulnerabilities that increase the environmental impacts of re-licensing Pilgrim and therefore the outcome of the cost-benefit analysis of alternatives," Reply for Waiver

(continuing . . .)

For the foregoing reasons, we find that the contention fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(2)(iii).

We therefore find that, even if the reopening requirements had not been required to be satisfied (which we find not to be the case), this contention fails to satisfy the timeliness requirements of 10 C.F.R. § 2.309(f)(2).

Finally, we must note that our decision today cannot be based upon the absence of sufficient information to disprove that there could be at some time in the future sufficient information to lead to significantly different results of the Pilgrim environmental analysis. To do so would require proof of a negative and plainly stand adjudicative principles on their head.

Further, as to the question of whether the events at Fukushima present considerations for Pilgrim that must be weighed under NEPA, the black letter law is that NEPA requires consideration of reasonably foreseeable events. While not drawing a definitive line regarding when an event is reasonably foreseeable, the common law has addressed a boundary on the other side of the same coin, finding generally that NEPA does not require consideration of remote and speculative matters.[240] As we discussed at length above, there is presently absolutely no information presented from the Fukushima accidents that has been indicated to have any impact on the Pilgrim plant or its environmental impact, and certainly, therefore, has implicated nothing reasonably foreseeable for Pilgrim. It is pure speculation to aver that there is, or that there will be, at some unknown and unknowable time in the future, new significant

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(. . . continued)
Petition and Fukushima Contention at 8, but we note that the contention alleges no particularized vulnerability nor does it identify any new and materially different information other than the assertions respecting CDF.

[240] There are myriad examples of application of this principle in, for example, codes implemented by agencies at various governmental levels requiring consideration, in the design of structures, of floods and earthquakes with a frequency of occurrence of more than once in a hundred years. This is certainly analogous to the “design basis” requirements of the NRC regarding severe accidents.

information arising from those accidents relevant to Pilgrim running so afoul of the requirement of NEPA and our regulations today so as to require delay of this license renewal decision.[241]

III. CONCLUSION AND ORDER

For the foregoing reasons, we DENY the Commonwealth's Stay Request and its Waiver Request, and, as we noted above, we GRANT the Commonwealth's Motion to Supplement, considering the information presented therewith for its value to this matter, and we find that the Commonwealth's Fukushima *C*ontention filed June 2, 2011 fails to satisfy the requirements of our regulations for reopening a closed record, for admission of a nontimely submitted contention, and the strict requirements for an admissible contention, each of which failures in-and-of itself would require that we deny the Commonwealth's Motion to Admit. It is, this 28th day of November, 2011, ORDERED that the Commonwealth's Stay Request and Waiver

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[241] As the Commission has noted in ruling on petitioners' NEPA-related assertions, there is simply insufficient information available at this time from Fukushima, and the NRC's processes are intended to accommodate the raising of concerns when and if there is.

> [T]he rules cited by the rulemaking petitioners that reach "generic conclusions" regarding severe reactor and spent fuel accidents appear to be those that pertain to license renewal. . . . As we noted in the Pilgrim and Vermont Yankee matters, after considering the rulemaking petitions, the NRC will make a decision whether to deny the petitions, or proceed to make revisions to Part 51. Depending on the timing and outcome of the NRC Staff's resolution of the rulemaking petitions, the Staff itself potentially could seek the Commission's permission to suspend one or more of the generic determinations in the license renewal environmental rules, and include a new analysis in pending, plant-specific environmental impact statements.

Callaway, CLI-11-05, 74 NRC at __ (slip op. at 40) (internal citations and footnotes omitted). And the Commission repeated this message in an even more recent ruling, stating

> NRC will develop lessons learned, as it has in the past – that is, the NRC will "evaluate all technical and policy issues related to the event to identify potential research, generic issues, changes to the reactor oversight process, rulemakings, and adjustments to the regulatory framework that should be conducted by NRC." Accordingly, our comprehensive evaluation includes consideration of those facilities that may be subject to seismic activity or tsunamis . . . . Further, that evaluation will include consideration of lessons learned that may apply to spent fuel pools that are part of the U.S. nuclear fleet.

Diablo Canyon, CLI-11-11, 74 NRC at __ (slip op. at 36) (citation omitted).

Request, and its Motion to Admit a proposed new contention are *therefore* DENIED, and the evidentiary record in this proceeding remains closed.

It is so ORDERED.

FOR THE ATOMIC SAFETY
AND LICENSING BOARD[242]

/RA/

_____
Dr. Paul B. Abramson
ADMINISTRATIVE JUDGE

/RA/

_____
Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Rockville, Maryland
November 28, 2011

[242] Judge Young concurs with our decision in results only. Her views are set forth on the following pages.

Administrative Judge Ann Marshall Young, Concurring in Results Only

I would not admit the Commonwealth's contention for the reason that I find it to be premature, based on the Commission's decision in *Union Electric Company d/b/a/ Ameren Missouri* (Callaway Plant, Unit 2) *et al.*(hereinafter CLI-11-05),[1] issued September 9, 2011. I would permit the filing of Fukushima-related contentions when relevant information becomes ripe for consideration.

The Commission in CLI-11-05 addressed the petitions of a number of parties to suspend, and take certain other actions with respect to, various nuclear power plant licensing proceedings (including Pilgrim) based on the March 2011 accident at the Fukushima Dai-ichi plant in Japan. The Commission declined to suspend the proceedings, finding among other things that "the mechanisms and consequences of the events at Fukushima [we]re not yet fully understood" and "the full picture of what happened at Fukushima [wa]s still far from clear" on September 9, 2011, thus warranting a conclusion that a request for analysis whether the Fukushima events constitute "new and significant information" under NEPA was then "premature."[2] Although the Commission in these statements was addressing generic issues, and expressly stated that in individual proceedings "litigants may seek admission of new or amended contentions,"[3] its prematurity analysis would reasonably seem also to be applicable in individual proceedings at this time.

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[1] *Union Electric Company d/b/a/ Ameren Missouri* (Callaway Plant, Unit 2) *et al.*, CLI-11-05, 74 NRC __ (Sept. 9, 2011).

[2] *Id.* at __ (slip op. at 29-30).

[3] *Id.* at __ (slip op. at 35).

I note that, subsequent to the July 12, 2011, issuance of the Near-Term Task Force Report,[4] the Commission directed the NRC Staff to "implement without delay" certain of the Task Force's recommendations.[5] Given, however, that the deadline set by the Commission for completion of this task is the year 2016,[6] this would not seem to be sufficient to change the Commission's analysis on prematurity as stated in CLI-11-05, or otherwise suggest that the Commonwealth's contention would not fall within its ambit.[7] I therefore conclude that the Commonwealth's new Fukushima-related contention is premature at this time.

In view of this conclusion, I do not address the various regulatory criteria for reopening the record and admitting the new contention, or for waiving rules relating to spent fuel pool accidents. Nor do I address the Commonwealth's May 2, 2011, Motion to Stay, given that issuance of CLI-11-05 rendered it moot.

I do, however, take this opportunity to touch upon two concepts that I find warrant some attention, given that they have arisen more than once in this proceeding, with respect to more than one contention and more than one regulatory requirement, and may bear on the future conduct of this proceeding. The first of these concepts is that of whether information is "new," so as to make a contention based on it timely; this comes up with any contention filed after the beginning of a proceeding under 10 C.F.R. § 2.309(c) or (f)(2), and also in determining whether

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[4] *See* Dr. Charles Miller *et al.*, Recommendations for Enhancing Reactor Safety in the 21st Century, The Near-Term Task Force Review of Insight from the Fukushima Dai-Ichi Accident (July 12, 2011) (ADAMS Accession No. ML111861807).

[5] Staff Requirements Memorandum – SECY-11-0124 – Recommended Actions to be Taken Without Delay from the Near-Term Task Force Report (Oct. 18, 2011) at 1 (ADAMS Accession No. ML1129115710).

[6] Id.

[7] I would observe, however, that this does not necessarily mean that information on Fukushima could not become sufficiently developed to warrant the filing of new contentions prior to 2016.

a previously closed proceeding should be reopened under 10 C.F.R. § 2.326. The second is the concept of a matter being significant enough to be considered, in one way or another, in a proceeding – a concept that touches on various criteria for admissibility of contentions under 10 C.F.R. § 2.309, the criteria for reopening under § 2.326, as well as requirements under NEPA and NEPA-related NRC law and regulation.

The newness/timeliness issue presents itself with respect to the "direct experience" argument of the Commonwealth. The Commonwealth argues through its expert that data from the body of actual experience with respect to severe accidents at nuclear power plants, now including the Fukushima accident, can provide a "reality check" for PRA estimates of core damage probabilities in the Pilgrim SAMA analysis.[8] Although, as my colleagues find, this argument might certainly have been raised earlier with respect to experience from all events other than the Fukushima accident, information from Fukushima is clearly "new" information, whatever its significance may be with respect to the Pilgrim SAMA analysis, such that making the argument insofar as it takes into account Fukushima could not have been done earlier. To the same effect as I stated in my Dissent and Concurrence in LBP-11-23, the fact that a contention based on "new" information is also supported by previously-existing information "negates neither the 'new-ness' of the Fukushima-related information, nor the value of either sort of information, whatever its worth otherwise."[9]

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[8] Commonwealth of Massachusetts' Contention Regarding New and Significant Information Revealed by the Fukushima Radiological Accident (June 2, 2011), Attached Report of Gordon R. Thompson, Institute for Resource and Security Studies, New and Significant Information From the Fukushima Daiichi Accident in the Context of Future Operation of the Pilgrim Nuclear Power Plant (June 1, 2011) at 15; *see id*. at 14-18.

[9] LBP-11-23, 74 NRC __, __, Administrative Judge Ann Marshall Young, Concurring in Part and Dissenting in Part (slip op., Dissent, at 3) (Sept. 8, 2011).

I note, moreover, regarding the SAMA analysis itself, that, as my colleagues point out, this "is a probabilistic safety analysis whereby probabilities are developed and assigned to each event in (continued. . .)

With respect to the issue of significance, I agree that Dr. Thompson is less specific than might be desired in his analysis of the significance of Fukushima-related information and its impact on the Pilgrim SAMA analysis. And of course, as suggested by the Commission in CLI-11-05, the full picture of the Fukushima accident and its aftermath is not yet clear, such that there is insufficient information available at this time to conclude that consideration of issues relating to the Fukushima accident *would* clearly lead to significantly different analyses of environmental consequences in the Pilgrim EIS (including in the SAMA analysis summarized

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(. . .continued)

the series and those are utilized, in connection with all other event series analyzed, to develop overall release probabilities." Majority Decision at 49 n.173. Further, as NRC Staff experts described the SAMA analysis earlier in this proceeding:

> The PRA for a commercial power reactor has traditionally been divided into three levels: level 1 is the evaluation of the combinations of plant failures that can lead to core damage; level 2 is the evaluation of core damage progression and possible containment failure resulting in an environmental release for each core-damage sequence identified in level 1; and level 3 is the evaluation of the consequences that would result from the set of environmental releases identified in level 2. All three levels of the PRA are required to perform a SAMA analysis.

NRC Staff Testimony of Nathan E. Bixler and S. Tina Ghosh Concerning the Impact of Alternative Meteorological Models on the Severe Accident Mitigation Alternatives Analysis, Exhibit NRC000014 (June 2, 2011), A11 at 7-8.

How the probabilities used in the analysis are developed and assigned to each input event in a series is key, as the development and assigning of probability values to a large number of possible equipment failures, operator actions, etc., determine the outcome probabilities of the overall analysis. If any of the input values are based on incorrect or incomplete information on past failures, for example, this could call into question the overall analysis and its results. It would thus seem likely that, once information from Fukushima is available, it might well play into the input values used in a SAMA analysis for a Mark I boiling water reactor of the sort that failed at Fukushima, such as the Pilgrim reactor. Of course, a SAMA analysis includes conservatisms that account for some uncertainties, but notwithstanding these conservatisms, until it is known how the inputs into the analysis might change as a result of information learned from Fukushima, it is unclear what the results of the overall analysis might be.

The Pilgrim SAMA analysis is summarized in the EIS and constitutes part of the basis for the conclusions stated therein. *See* NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Supp. 29, Regarding Pilgrim Nuclear Power Station, Final Report (July 2007) (ADAMS Accession No. ML063260173) [hereinafter EIS]; *see id.* at Ch. 5.

therein). However, there is obviously at this time also insufficient information to conclude that consideration of relevant Fukushima-related issues *could not* lead to significantly different analyses of the environmental consequences of renewing the Pilgrim operating license.[10] I find that the Commonwealth has shown at least some likelihood that information on Fukushima could have some such impacts,[11] such that it cannot be said that consideration of Fukushima-related issues "could not affect" the ultimate decision on the renewal application.[12]

For these reasons, and to ensure basic fairness, I would permit the Commonwealth to file new Fukushima-related contentions at such time as relevant information may be ripe for consideration.[13]

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[10] Thus, there is similarly insufficient information to conclude that any and all possible impacts of Fukushima-related information on the analysis of environmental consequences at Pilgrim would be "remote and speculative," such that no further NEPA analysis would be required. What is "reasonably foreseeable" with respect to Fukushima and the impact of information arising out of it on environmental analyses relating to Pilgrim would also seem to be an open question at this point.

[11] I also find that Pilgrim Watch has shown a reasonable likelihood of such impacts. *See* LBP-11-23, 74 NRC __, Administrative Judge Ann Marshall Young, Concurring in Part and Dissenting in Part (Sept. 8, 2011).

[12] *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 737 (3rd Circ. 1989).

[13] Indeed, it would appear that Fukushima-related issues must be addressed in some manner in this proceeding prior to its conclusion and a final determination on the license renewal request, given (1) the reasonable likelihood that relevant Fukushima-related information *could* in this proceeding lead to significantly different analyses and/or conclusions in the EIS and SAMA analysis; and (2) NEPA's "'dual purpose' [of] ensur[ing] that federal officials *fully* take into account the environmental consequences of a federal action *before* reaching major decisions, and [ ] inform[ing] the public, Congress, and other agencies of those consequences." *Private Fuel Storage, L.L.C*. (Independent Spent Fuel Storage Installation), CLI-02-25, 56 NRC 340, 348 (2002) (emphasis added) (citing *Robertson v. Methow Valley Citizens Council,* 490 U.S. 332, 349 (1989); *Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc.,* 462 U.S. 87, 97 (1983); *Dubois v. US Dept. of Agriculture,* 102 F.3d 1273, 1291 (1st Cir. 1996)).

As suggested in the text, the information to date from Fukushima is insufficiently clear to support a conclusion that the Pilgrim EIS could fairly be said to "fully take into account the environmental consequences" of renewing the Pilgrim operating license, in the absence of consideration of Fukushima-related matters. This is not to say that a decision on the current contention could be (continued. . .)

(. . .continued)

based on the absence of information, but rather simply to comment on the prematurity of Fukushima-related issues at this time, including their effect, one way or the other, on individual plant SAMA analyses and environmental impact statements. In order, however, for license renewal to be a meaningful process with respect to the Pilgrim plant with its Mark I boiling water reactor, and in order to assure that the Commonwealth and its citizens have their understandable concerns and interests addressed, the impact of Fukushima-related issues on the pending application should be analyzed at a time and in a manner that fully takes into account, not "every alternative device and thought conceivable by the mind of man," *Vermont Yankee Nuclear Power Corp. v. NRCD*, 435 U.S. 519, 551 (1978), but "every *significant* aspect of the environmental impact" of the sought license renewal, *id.* at 553 (emphasis added), including Fukushima-related impacts, *prior to* an ultimate decision on the application.

It is true that, but for the remand of Contention 3 in CLI-10-11, 71 NRC __ (Mar. 26, 2010), the Pilgrim renewal application would no doubt have been granted some time ago. But this did not occur, and it happened that the Fukushima accident occurred two days after oral argument on the remanded Contention 3. At that point, or soon thereafter as the severity of the accident began to become apparent (even if only on a preliminary basis), matters relating to severe accidents involving Mark I BWRs, to their mitigation, and to the environmental impacts of continued operation in the very densely-populated coastal area where Pilgrim is located, took on added significance.

It is unclear exactly how Fukushima-related issues will be addressed in every current licensing proceeding. Ultimately this is a question that is to some extent case-specific. *See supra* text accompanying note 3. However, it may be observed that, if the EIS and SAMA analysis are significant enough matters that they are *required* to be completed in connection with the license renewal application itself, logic dictates that they are significant enough that they should *accurately* address *all truly significant issues* that might reasonably be expected to be relevant to the application, *prior to* action on the application, even if meaningful consideration might need to await some additional development of information from Fukushima. This would seem to be particularly appropriate with respect to proceedings involving Mark I boiling water reactors.

For the preceding reasons, and because the reactor at the Pilgrim plant is a Mark I BWR like the Fukushima reactors, I find this proceeding to be one that would not fall within those cases involving "licenses that the NRC issues before completing its [Fukushima] review."[13] The existing Pilgrim operating license will, of course, remain in effect until issuance of an ultimate decision on the renewal application. Thus any possible harm to the Applicant, resulting from allowing for consideration of Fukushima-related matters in some manner prior to a final decision on the application, should be minimized. Moreover, it would seem to be in *all* parties' interests to timely assure either that Fukushima-related information would not negatively impact the Pilgrim EIS and/or SAMA analysis and conclusions, or that any potential problems could be effectively identified, addressed and, as appropriate and possible, mitigated.

In any event, it would be desirable to provide some reasonable mechanism for informing parties when the time is ripe for filing new Fukushima-related contentions. *See Callaway*, CLI-11-05, 74 NRC at __ (slip op. at 36).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
ENTERGY NUCLEAR GENERATION CO.	)	
AND	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket No. 50-293-LR
	)	
(Pilgrim Nuclear Power Station)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing MEMORANDUM AND ORDER (DENYING COMMONWEALTH OF MASSACHUSETTS' REQUEST FOR STAY, MOTION FOR WAIVER, AND REQUEST FOR HEARING ON A NEW CONTENTION RELATING TO FUKUSHIMA ACCIDENT) have been served upon the following persons by Electronic Information Exchange (EIE) and by electronic mail as indicated by an asterisk*.

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Docket No. 50-293-LR
MEMORANDUM AND ORDER (DENYING COMMONWEALTH OF MASSACHUSETTS' REQUEST FOR STAY, MOTION FOR WAIVER, AND REQUEST FOR HEARING ON A NEW CONTENTION RELATING TO FUKUSHIMA ACCIDENT)

U.S. Nuclear Regulatory Commission
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Dated at Rockville, Maryland
this 28th day of November 2011