

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

January 11, 2012

MEMORANDUM AND ORDER

(Denying Pilgrim Watch's Request for Hearing on
a New Contention Relating to Fukushima Accident)

We address herein the motion to admit a new contention filed by Pilgrim Watch on November 18, 2011¹ challenging the application by Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (collectively, Entergy) for renewal of its operating license for the Pilgrim Nuclear Power Station (Pilgrim) for an additional twenty-year period.² In this ruling of a majority of the Board, for the reasons discussed below, we deny the motion, finding, inter alia, that Pilgrim Watch has failed to satisfy the requirements for reopening the record under 10 C.F.R. § 2.326. We also find the contention is otherwise inadmissible because it fails to satisfy the criteria set out in 10 C.F.R. § 2.309(f)(1) for an admissible contention.

I. PERTINENT BACKGROUND

¹ Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post Fukushima (Nov. 18, 2011) [hereinafter, the Fukushima Aqueous Transport and Dispersion Contention].

² See 71 Fed. Reg. 15,222, 15,222 (Mar. 27, 2006) [hereinafter Entergy's LRA].

In 2006, Pilgrim Watch petitioned to intervene in opposition to Entergy's license renewal application (LRA).³ This Board granted the petition and admitted two of Pilgrim Watch's contentions—Contentions 1 and 3.⁴ Following the dismissal of Contention 3 on summary disposition⁵ and an evidentiary hearing on the merits of Contention 1,⁶ the Board closed the evidentiary record and terminated these proceedings.⁷ On appeal, the Commission remanded to the Board a specified and narrow portion of Contention 3 for reconsideration;⁸ on July 19, 2011, after receiving and considering written evidentiary submissions, including rebuttal testimony, from the parties, the Board again dismissed Contention 3.⁹

Before the Board's ruling on the remanded issue, however, Pilgrim Watch and the Commonwealth of Massachusetts moved to admit new contentions, some arising out of the March 2011 incident at the Fukushima Dai-ichi nuclear plant in Japan.¹⁰ In a series of orders,

³ Request for Hearing and Petition to Intervene by Pilgrim Watch (May 25, 2006).

⁴ LBP-06-23, 64 NRC 257, 348-49 (2006).

⁵ LBP-07-13, 66 NRC 131, 137 (2007).

⁶ Tr. at 557-874 (Apr. 10, 2008).

⁷ LBP-08-22, 68 NRC 590, 596 (2008); Licensing 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).

⁸ CLI-10-11, 71 NRC __, __ (slip op. at 3) (Mar. 26, 2010).

⁹ LBP-11-18, 74 NRC __, __ (slip op. at 1-2) (July 19, 2011) [hereinafter, Remanded Issue Order].

¹⁰ See Commonwealth of Massachusetts' Motion to Admit Contention and, if Necessary, to Reopen Record Regarding New and Significant Information Revealed by Fukushima Accident (June 2, 2011); Commonwealth of Massachusetts' Contention Regarding New and Significant Information Revealed by the Fukushima Radiological Accident (June 2, 2011); Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post-Fukushima (June 1, 2011); Pilgrim Watch Request for Hearing on Post Fukushima SAMA Contention (May 12, 2011); Pilgrim Watch Request for Hearing on a New Contention: Inadequacy of Entergy's Aging Management of Non-Environmentally Qualified (EQ) Inaccessible Cables (Splices) at Pilgrim Station (Jan. 20, 2011); Pilgrim Watch Request for Hearing on a New Contention: Inadequacy of Entergy's Aging Management of Non-Environmentally Qualified (EQ) Inaccessible Cables (Splices) at Pilgrim Station (Dec. 13, 2010);

the Board rejected each of those proposed contentions.¹¹

The history of this proceeding is documented in greater detail in our Remanded Issue Order, our Pre-Fukushima Order, our Pilgrim Watch Post-Fukushima Order, and our Commonwealth Post-Fukushima Order. We note that, in each of our rulings on the contentions filed post-remand, the Board determined that, because the evidentiary record had been previously closed, the Commission's demanding requirements for reopening the record must be satisfied in order for the hearing request to be granted.¹² The majority of the Board held that those Commission regulations had not been met with regard to any of the new contentions.¹³ As we discuss in depth below, the Fukushima Aqueous Transport and Dispersion Contention that is now before this Board likewise fails to satisfy the exacting requirements of 10 C.F.R. § 2.326 and also fails to present an admissible contention.

II. ANALYSIS

A. Legal Standards Governing Motion to Reopen the Record

Pilgrim Watch continues to insist that it is not required to reopen the record because, in its view, the record with respect to the subject matter of the current contention was never closed.¹⁴ As we have stated at length in each of our previous Orders, Pilgrim Watch errs on this

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Pilgrim Watch Request for Hearing on a New Contention (Nov. 29, 2010).

¹¹ LBP-11-20, 74 NRC __, __ (slip op. at 2-3) (Aug. 11, 2011) [hereinafter, Pre-Fukushima Order]; LBP-11-23, 74 NRC __, __ (slip op. at 3) (Sep. 8, 2011) [hereinafter, Pilgrim Watch Post-Fukushima Order]; LBP-11-35, 74 NRC __, __ (slip op. at 2) (Nov. 28, 2011) [hereinafter, Commonwealth Post-Fukushima Order].

¹² See 10 C.F.R. § 2.326.

¹³ See Pre-Fukushima Order at 20-21, 22-23, 29-30; Pilgrim Watch Post-Fukushima Order at 41; Commonwealth Post-Fukushima Order at 59, 64.

¹⁴ See Fukushima Aqueous Transport and Dispersion Contention at 45-47.

point.¹⁵ Consequently, we hold that Pilgrim Watch must satisfy the requirements of 10 C.F.R. § 2.326 for its request for a hearing on its Fukushima Aqueous Transport and Dispersion Contention to be granted. Those requirements 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.¹⁶

Further, 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.”¹⁷ In such affidavits, “[e]ach of the criteria must be separately addressed, with a specific explanation of why it has been met.”¹⁸

- (i) Additionally, any move to reopen the record “which relates to a contention not previously in controversy among the parties must also satisfy the requirements for nontimely contentions in [10 C.F.R.] § 2.309(c).”¹⁹ The balance of the Section 2.309(c) factors must weigh in favor of granting the motion to reopen. Those factors are discussed in their entirety in our previous rulings in this case.

Finally, any new contention must also satisfy the admissibility requirements of 10 C.F.R. § 2.309(f)(1).

B. Analysis of Pilgrim Watch New Contention

Pilgrim Watch’s contention states as follows:

Based on new and significant information from Fukushima, the Environmental Report is inadequate post Fukushima Daiichi. Entergy’s SAMA [Severe Accident Mitigation Alternative] analysis ignores new and significant issues raised by Fukushima regarding the probability of both containment failure, and subsequent

¹⁵ See, e.g., Pre-Fukushima Order at 14 & n.75 (citing precedent).

¹⁶ 10 C.F.R. § 2.326(a).

¹⁷ Id. § 2.326(b).

¹⁸ Id.

¹⁹ Id. § 2.326(d).

larger off-site consequences due, in part, to the need for flooding the reactor (vessel, containment, pool) with huge amounts of water in a severe accident, as at Fukushima. “An important limitation of the MACCS2 code is that it does not currently model and analyze aqueous transport and dispersion of radioactive materials through the subsurface water, sediment, soils, and groundwater. As demonstrated by the recent events in Japan, certain accident scenarios can result in large volumes of contaminated water being generated by emergency measures to cool the reactor cores and SFPs, with yet to be determined offsite radiological consequences. To determine the relative risk significance of these types of scenarios, (Pilgrim’s) Level 3 PRA must (model and analyze) the aqueous transport and dispersion of radioactive materials.” Further, there is no provision within the Severe Accident Mitigation Guidelines (SAMGs) for processing the water post accident. This important technical gap in Entergy’s SAMA needs to be addressed before closing this proceeding. As in Japan, enormous quantities of contaminated water are likely to enter Cape Cod Bay (adding to radioactive atmospheric fallout on the waters and contamination resulting from aqueous transport and dispersion of radioactive materials through subsurface water, sediments, soils and groundwater) and then flow to other water bodies and shores posing significant offsite consequences and costs, threatening the health of citizens and the ecosystem and damaging the economy.²⁰

Pilgrim Watch asserts that “it plainly is necessary to redo Pilgrim’s SAMA analysis” in light of the Fukushima accident,²¹ and “the Fukushima events plainly show that the environmental impacts of NRC relicensing Pilgrim may affect the quality of the human environment.”²² As with its earlier Fukushima-related contentions, Pilgrim Watch again

²⁰ Fukushima Aqueous Transport and Dispersion Contention at 1-2.

²¹ Pilgrim Watch alleges:
it plainly is necessary to redo Pilgrim’s SAMA analysis to take into account new and significant information learned from Fukushima regarding the probability of containment failure in the event of an accident and the concomitant probability of a significantly larger volume of off-site consequences due to the need for flooding the reactor (vessel, containment, pool) with huge amounts of water in a severe accident, as at Fukushima. This source of contamination would add to that resulting from aqueous transport and dispersion of radioactive materials through subsurface water, sediments, soils and groundwater, plus atmospheric fallout on the waters - resulting in three sources of contamination in the waters.
Id. at 3 (emphasis in original).

²² More specifically, Pilgrim Watch refers us to case law for their view that:
The ASLB must consider issues raised by Fukushima prior to relicensing Pilgrim because, even if they are not yet all conclusively understood, the Fukushima events plainly show that the environmental impacts of NRC relicensing Pilgrim may “affect the quality of the human environment in a significant manner or to a significant extent not already considered.”

acknowledges that the events which occurred at the Fukushima reactors “are not yet all conclusively understood.”²³

As a foundation for its contention, Pilgrim Watch points to a July 7, 2011 paper prepared for the Commission recommending “Options for Proceeding with Future Level 3 Probabilistic Risk Assessment Activities” (SECY-11-0089) as evidence that the use of the MACCS2 code in Entergy’s SAMA analysis was insufficient.²⁴ That paper, states Pilgrim Watch, observed a “limitation” of the MACCS2 code in that “it does not currently model and analyze the aqueous transport and dispersion of radioactive materials through surface water, sediments, soils, and groundwater.”²⁵

In this regard, Pilgrim Watch explains that the focus of its contention is:

the significant technical gap in Entergy’s SAMA to which this contention is addressed—that Entergy failed to model contaminated aqueous [sic] releases “bled” into Cape Cod Bay from the large volumes of water needed to flood the reactor (vessel, containment, pool) in a severe accident extending over an extended period of time in the type of disaster we now know is credible. This source of contamination would add to that resulting from aqueous transport and dispersion of radioactive materials through subsurface water, sediments, soils and groundwater, plus atmospheric fallout on the waters—resulting in three sources of contamination in the water. Entergy’s SAMA failed to analyze these offsite costs.²⁶

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Id. at 5 (citing Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 374 (1989)).

²³ Id.

²⁴ Id. at 10 (citing Options for Proceeding with Future Level 3 Probabilistic Risk Assessment Activities, SECY-11-0089, Encl. 1 (July 7, 2007) at 29).

²⁵ SECY-11-0089, Encl. 1 at 29. The paper states that “a Level 3 PRA must be capable of modeling and analyzing the aqueous transport and dispersion of radioactive materials” in order to determine the relative risk of Fukushima-like scenarios. Id. However, the paper makes no reference to SAMA analysis.

²⁶ Id. at 8-9. Pilgrim Watch makes cursory mention of a failure of the SAMA analysis respecting the probability of containment failure, stating “Entergy’s SAMA analysis ignores new and significant issues raised by Fukushima regarding the probability of both containment failure, and subsequent larger off-site consequences due to the need for flooding the reactor (vessel, containment, pool) with huge amounts of water in a severe accident, as at Fukushima,” id. at 10,

Although Pilgrim Watch presents extensive information respecting the currents and tides and the wind patterns in the area around the Pilgrim plant,²⁷ and extensive information respecting economic and environmental impacts,²⁸ its sole effort to link the accident at Fukushima to the Pilgrim plant consists of the following statements:

Therefore based on experience in Japan, it is not reasonable to assume, absent convincing evidence to the contrary, that there would be a solution to deal with the volumes of contaminated water bled into Cape Cod Bay in similar circumstances at Pilgrim Station.²⁹

And:

The area likely to be impacted from aqueous transport and dispersion of radioactive materials, as in Fukushima, is considerable encompassing: Duxbury, Kingston and Plymouth Bays; Cape Cod Bay; Massachusetts Bay (that includes, for example, Boston Harbor and Stellwagen Bank a National Marine Sanctuary), the outside arm of Cape Cod and the multiple rivers and estuaries branching off these bodies of water. Economic impact will result, as shown in Japan, from actual/measured contamination above acceptable limits and the public's perceived or feared contamination irrespective of actual readings.³⁰

Finally, Pilgrim Watch asserts:

Lessons learned from Fukushima provide a preview of what would happen at Pilgrim, a sister-reactor to those in Fukushima. Entergy's SAMA failed to model offsite marine economic costs; it must be required to do so.³¹

Pilgrim Watch repeats and expands its previous arguments regarding why the requirements of 10 C.F.R. § 2.326 are inapplicable, asserting again that "[t]he record in this proceeding is and will remain open until and unless the Board and the Commission close it with

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but presents no discussion whatsoever of containment failure probabilities, focusing, as we note above, upon aqueous transport and dispersion.

²⁷ Id. at 13-18.

²⁸ Id. at 19-38.

²⁹ Id. at 13.

³⁰ Id. at 18.

³¹ Id. at 22.

respect to everything involved in this proceeding.”³²

Nonetheless, Pilgrim Watch asserts that they have “moved under, and have met the requirements of, 2.326.”³³ However the entirety of their pleading on the topic is the bare and conclusory statements that:

The motion was timely satisfying 2.326(a)(1). The motion addressed a significant safety or environmental issue, 2.326 (a)(2). The motion showed a materially different result would have been likely had the newly proffered evidence been considered initially, 2.326(a)(3).³⁴

And its bare assertion that:

Pilgrim Watch’s motion shows that a materially different result would be likely had this new and significant information been available to consider initially. The offsite consequences/costs would be substantially greater if considered by Entergy in its SAMA analysis; or in the alternative Entergy failed to show that it would not be materially different because they never considered it.³⁵

As to the requirements of 10 C.F.R. § 2.326(b), Pilgrim Watch’s contention is supported by a signed “declaration” of Arnold Gundersen.³⁶ In addition to describing his credentials as an expert in nuclear engineering, Mr. Gundersen states that a Fukushima-like accident at Pilgrim “could have significant offsite consequences and unanticipated costs that would threaten the health of citizens, the ecosystem and economy.”³⁷ He also declares that “Entergy’s modeling and assumptions for a ‘severe’ accident do not adequately assess what has already occurred at four almost identical Boiling Water Reactors.”³⁸

³² Id. at 47 (emphasis in original).

³³ Id.

³⁴ Id. at 48.

³⁵ Id. at 44-45.

³⁶ Id., attach., Declaration of Arnold Gundersen Supporting a Request By Pilgrim Watch for a New Contention Hearing Regarding the Inadequacy of Pilgrim Station’s Environmental Report, Post Fukushima (Nov. 17, 2011) [hereinafter Gundersen Declaration].

³⁷ Id. ¶ 16.

³⁸ Id. ¶ 27.

The statement by Mr. Gundersen makes no specific reference to 10 C.F.R. § 2.326, nor does it address explicitly the requirements of that regulation. The totality of his testimony on the topic is as follows:

21. In my professional opinion, this request for hearing has been brought in a timely manner because it relies upon wholly new information gleaned from the four nuclear power plant accidents at the Fukushima site and subsequent environmental disaster presenting itself in the Fukushima Prefecture. Clear information to support this contention has now only recently become available following months and months of cover-ups by the Tokyo Electric Power Company regarding the severity of these accidents, including a five-week denial that the unfolding accident was at least a Level 7. Every day I monitor information that continues to be made public regarding attempts to contain the large volumes of contaminated water cleanup including the industrywide unanticipated challenges and burgeoning unprecedented costs.

22. More specifically, according to SECY-11-0089 the MACCS2 computer code used by Entergy does not model aqueous transport. Support for this contention's timeliness is evidenced by the fact that the NRC Commissioners did not vote on and accept SECY-11-0089 until late September 2011.

23. In my professional opinion, this new contention raised by Pilgrim Watch clearly addresses a significant safety and environmental issue by showing the effect of copious amounts of radioactive releases upon the marine environment, the area likely to be contaminated (or, as important, that will be believed by the public to be contaminated) and its resulting economic impact. Witnessing the events in Japan and its effect on the marine environment and economy, one cannot think otherwise.

24. . . . I believe that Entergy's Pilgrim Station SAMA would be entirely different if Entergy had modeled and analyzed aqueous transport and dispersion of radioactive materials. The new contention submitted by Pilgrim Watch clearly shows that a materially different result would be, or would have been likely, had the newly proffered evidence from the Fukushima accidents have been analyzed in the original application. Fairewinds Associates looks forward to reviewing Entergy's SAMA analysis once Entergy has modeled the impact of the release of copious amounts of radioactive water upon the aquatic, marine, and marshland environment of Cape Cod Bay and connected waters. Entergy's modeling and analysis should include mitigation and remediation of a Fukushima-like accident in Plymouth, Massachusetts and the surrounding interconnected pristine natural environments.³⁹

And, as to providing any specific linkage between the events at Fukushima and the Pilgrim plant, Gundersen states:

³⁹ Id. ¶¶ 21-24.

30. Since we know that millions of gallons of contaminated water bled into the ocean at Fukushima, it is reasonable to assume that the same would hold true at Pilgrim. However, there is no Pilgrim-specific factual information publicly available.

31. While NUREG/CR- 5634, September 1991 did not specifically reference Pilgrim, it said on page 4-19 that flooding the Peach Bottom (Boiling Water Reactor) containment up to the RPV [reactor pressure vessel] bottom head takes 1,500,000 gallons.

- This postulation assumes that the containment retains its integrity, and that did not happen at Fukushima.
- It is important to note that flooding the containment up to the top of the reactor core would take more water. This postulation also assumes that the reactor pressure vessel would retain its integrity, and that did not happen at Fukushima.

Using Fukushima as a reference, continuing to fill a leaking reactor to maintain a water level up to the top of the core could mean that millions of gallons of radioactive water would bleed into the environment in an accident like that at Pilgrim's sister-reactors in Fukushima.

33. Here again, we know that the area impacted by the disaster at Fukushima is enormous and according to other experts over time the entire Pacific Ocean will become contaminated. Therefore, there is every reason to expect that a similarly large area would be affected by a similar accident at Pilgrim Station. It is certainly reasonable to assume that the entire Cape Cod Bay would be unusable by the public for its intended function after a severe accident at Pilgrim Station. However, and once again, no Pilgrim-specific information has been made available for valid independent scientific review. Based upon experiences at Fukushima, it is my professional judgment that the area affected, and, more importantly, believed to be contaminated, would be as large as that at Fukushima Daiichi in a similar severe accident scenario at Pilgrim Station located as it is in relation to the Cape Cod and Massachusetts Bays and feeding into the Atlantic Ocean.

39. In conclusion, the accidents at Fukushima Daiichi occurred at nuclear power plants almost identical to Pilgrim Station. If such an accident were to occur at the similarly aged and almost identical Pilgrim Station BWR Mark 1, it is my opinion that the economic impacts would be significant in a similar accident scenario at Pilgrim. However additional factual information, that is not currently publicly available, is required from Entergy in order to correctly ascertain the significant damage that would be caused to the environment if such an accident were to occur at Pilgrim Station. To conduct a thorough scientific analysis, Entergy should provide information regarding: the likely volume of water fed into the reactor in an accident similar to Fukushima; the volume and radioactive composition of water bleeding into Cape Cod Bay, added on top of the radioactive fallout onto the water from the air; and the area likely to be impacted, and equally as important, the area believed may be impacted. For example, there are comprehensive studies on the marine economy performed for the Commonwealth of Massachusetts by the University of Massachusetts Donahue

Institute that could be applied and used as a baseline once Entergy and the NRC make this required information available.⁴⁰

Staff and Entergy filed their respective Answers to the Fukushima Aqueous Transport and Dispersion Contention on December 13, 2011, asserting, inter alia, that this contention fails to satisfy the requirements of 10 C.F.R. §§ 2.326 and 2.309(f)(1).⁴¹ Notably, in answering the assertions by Pilgrim Watch and Mr. Gundersen, Dr. O’Kula, testifying for Entergy, set out detailed (and uncontroverted) reasons why a Fukushima-like event could not reasonably be expected to occur at Pilgrim and pointing to explicit failures to challenge the Pilgrim LRA.⁴² Pilgrim Watch filed its Reply to those Answers on December 20, 2011.⁴³

C. Ruling on Pilgrim Watch New Contention

1. Reopening Criteria

The foundation of Pilgrim Watch’s new contention is its assertion that “Entergy failed to model [scenarios in which] contaminated aqueous releases ‘bled’ into Cape Cod Bay from the large volumes of water needed to flood the reactor (vessel, containment, pool) in a severe accident extending over an extended period of time.”⁴⁴ We examine the requirements of 10 C.F.R. § 2.326 and § 2.309(f)(1) as they apply to this fundamental assertion and in light of all

⁴⁰ Id. ¶¶ 30, 31, 33, 39.

⁴¹ NRC Staff’s Answer in Opposition to Pilgrim Watch’s Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post Fukushima (Dec. 13, 2011) [hereinafter Staff Answer]; Entergy’s Answer Opposing Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post-Fukushima, (Dec. 13, 2011) [hereinafter Entergy Answer].

⁴² Entergy’s Answer Opposing Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post-Fukushima, Declaration of Mr. Joseph R. Lynch and Dr. Kevin R. O’Kula (Dec. 13, 2011) ¶¶ 24-38 [hereinafter Entergy Decl.].

⁴³ Pilgrim Watch Reply to Entergy’s and NRC Staff’s Answers to Pilgrim Watch Request for Hearing on A New Contention Regarding Inadequacy of Environmental Report, Post Fukushima –Aqueous Discharges (Dec. 20, 2011) [hereinafter Pilgrim Watch Reply]. The NRC Staff filed a motion to strike portions of Pilgrim Watch’s reply on December 29, 2011. Because we have considered the contents of all pleadings for their merits, we decline to rule on the motion to strike.

⁴⁴ Fukushima Aqueous Transport and Distribution Contention at 8.

the content of Pilgrim Watch's pleadings.

Regarding the requirements of 10 C.F.R. § 2.326(a)(1) that the motion be timely, the motion must be based on new information relevant to the Pilgrim plant and the LRA that is materially different from information previously available.⁴⁵ As to the newness of information regarding "bleed and feed" at Fukushima, information has been widely available since the early stages of the Fukushima accidents that Tokyo Electric Power Company (TEPCO) attempted to add additional water to the cores and the spent fuel pools of several of its units. Indeed Pilgrim Watch recognizes this fact by including in its pleading photographs and news articles from April 2011 that reference water being injected into and exiting from the Fukushima reactors.⁴⁶ Similarly, the information that this added water was not confined in the reactor vessels or their containments (the "bleed and feed" process to which Pilgrim Watch now refers) was widely publicized from the early days of the accidents, and therefore the "flooding" and "bleed and feed" at the Fukushima Daichi plants to which Pilgrim Watch refers has been known since before May of 2011.⁴⁷ As to inadequacies of the MACCS2 code, Pilgrim Watch now asserts that the information contained in the SECY-11-0089 paper dated July 7, 2011 and several later documents regarding the inability of the MACCS2 Code to model these phenomena is new and relies upon that for its assertion that this contention satisfies 2.326(a)(1).⁴⁸ However, these

⁴⁵ See Entergy Nuclear Vermont Yankee, LLC & Entergy Nuclear Operations, Inc. (Vermont Yankee Nuclear Power Station), CLI-11-02, 73 NRC __, __ (Mar. 10, 2011) (slip op. at 6) (citing 10 C.F.R. § 2.309(f)(2)).

⁴⁶ Fukushima Aqueous Transport and Distribution Contention at 9.

⁴⁷ Indeed, Staff points to an article available as early as March, 2011 discussing this matter. Staff Answer at 11 & n.43.

⁴⁸ See, e.g., supra note 25. Pilgrim Watch also references newspaper articles from September through November, 2011, that describe current conditions at Fukushima and contain speculation about the causes and effects of the incident. See Fukushima Aqueous Transport and Dispersion Contention at 12-13, 21-22. These non-expert sources are not the proper basis for a contention, and at any rate, Pilgrim Watch fails to provide any meaningful link between the conditions they describe at Fukushima and the asserted characteristics of the Pilgrim plant or its surroundings or environs.

limitations of the MACCS2 Code have been present for decades and Pilgrim Watch cannot reasonably assert that it has just now learned of those limitations, given that it has had access to an expert in that code (Mr. David Chanin) who served as its expert regarding several previous contentions.⁴⁹ Furthermore, SECY 11-0089 does nothing more than compile previously available information, and the Commission has been clear that such compilations cannot serve to satisfy the requirement for “new” information.⁵⁰ Thus assertions regarding the need to model “bleed and feed” processes and aqueous transport and dispersion could (and therefore should) have been raised at the outset of this proceeding, and, to the extent that they assert shortcomings in the Pilgrim LRA based upon the accidents at Fukushima, certainly not later than a nominal period after occurrence of those accidents. Boards have typically found new contentions to be timely when filed within thirty days of the date that asserted foundational information became available.⁵¹ Therefore, the filing by Pilgrim Watch more than six months after the latest date plausibly argued to present foundational new information cannot be considered timely.⁵²

Further, as we held in our Commonwealth Post-Fukushima Order, the new information on which the contention is based must be relevant to the present proceeding.⁵³ But as with the Commonwealth, Pilgrim Watch has failed to provide any information that links the events at Fukushima to the risk of a severe accident at the Pilgrim site, and has made no arguments

⁴⁹ See, e.g., Pilgrim Watch Post-Fukushima Order at 13; LBP-07-13, 66 NRC 131, 148-49 (2007); see also Entergy Decl. at ¶¶ 15-22.

⁵⁰ See Northern States Power Co. (Prairie Island Nuclear Generating Plant, Units 1 and 2), CLI-10-27, 72 NRC __, __ (Sept. 30, 2010) (slip op. at 17-18) (intervenor may not “delay filing a contention until a document becomes available that collects, summarizes, and places into context [previously available] facts supporting that contention”).

⁵¹ See, e.g., Southern Nuclear Operating Co. (Vogtle Electric Generating Plant, Units 3 and 4), CLI-11-08, 74 NRC __, __ (Sept. 27, 2011) (slip op. at 3 & n.8).

⁵² We note that both Applicant and Staff have asserted, and we agree, that these arguments are untimely for these reasons. See Staff Answer at 10-12; Entergy Answer at 11-18.

⁵³ See Commonwealth Post-Fukushima Order, LBP-11-35, at 50.

regarding why the beyond-design-basis duration of station blackout that occurred at Fukushima following a beyond-design-basis earthquake and a beyond-design-basis tsunami is relevant for Pilgrim, which in and of itself causes the contention to fail to present any new information respecting the subject LRA. In addition, Entergy has provided detailed expert testimony why there is no such relevance.⁵⁴ The lack of any scientific support for their bare assertion that these problems could or should be relevant for Pilgrim, causes the Pilgrim Watch pleading to fail to provide any new information respecting the Pilgrim LRA, and by that failure also renders Pilgrim Watch's contention non-timely.⁵⁵

Nonetheless, as noted above, a non-timely contention may still satisfy the requirements of 10 C.F.R. § 2.326(a)(1) if it raises an exceptionally grave issue. The Commission has defined the relevant legal standard: an exceptionally grave issue is one which raises "a sufficiently grave threat to public safety."⁵⁶ And, as is pertinent to this particular contention, the Commission has expressed the standard for when an environmental issue is "significant" for the purposes of reopening a closed record, equating it to the standards for when an environmental impact statement (EIS) is required to be supplemented—there must be new and significant information which will "paint a seriously different picture of the environmental landscape."⁵⁷

⁵⁴ See, e.g., Entergy Decl. at ¶¶ 66-67.

⁵⁵ The Entergy expert affidavits make the absence of such a linkage more clear, but are not necessary for our conclusion on this topic.

⁵⁶ Criteria for Reopening Records in Formal Licensing Proceedings, 51 Fed. Reg. 19,535, 19,536 (May 30, 1986).

⁵⁷ Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation), CLI-06-03, 63 NRC 19, 28 (2006) (emphasis in original) (also holding, at 29, that claimed additional environmental impacts were "not so significant or central to the FEIS's discussion of environmental impacts that an FEIS supplement (and the consequent reopening of our adjudicatory record) is reasonable or necessary"). More recently, the Commission repeated this standard, stating the asserted new information must present "a seriously different picture of the environmental impact of the proposed project from what was previously envisioned." Union Elec. Co. d/b/a Ameren Missouri (Callaway Plant, Unit 2), CLI-11-05, 74 NRC __, __ (Sept. 9, 2011) (slip op. at 31) (internal quotations and citations omitted) (referencing 10 C.F.R. § 51.72, the regulation outlining the conditions for supplementing a Draft EIS).

And, for there to be an exceptionally grave issue in this proceeding, it must relate to the Pilgrim plant directly—not by speculation.

Here, Pilgrim Watch points to no environmental impact which would, or even might, arise from the failure to revise the SAMA analyses to consider information it asserts arose from the Fukushima accident. Rather, Pilgrim Watch 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.

Pilgrim Watch does not raise any particularized threat to public safety at the Pilgrim plant—it asserts without scientific support that the events at Fukushima must be considered in the Pilgrim SAMA analysis without providing any information about the plant or its design, operation, and maintenance. It merely seeks a revision of Entergy’s SAMA analysis that may or may not result in other SAMAs becoming cost-effective, which, in turn, may or may not help to mitigate some highly unlikely future severe accident.⁵⁸ Speculation of such an outcome does not establish that there is an exceptionally grave issue for the Pilgrim plant.⁵⁹

Pilgrim Watch’s contention can hardly be said, therefore, to paint the required “seriously different picture of the environmental landscape.” And neither the speculation by Pilgrim Watch and Mr. Gundersen to the effect that other SAMAs might become cost effective, nor Pilgrim Watch’s intimations regarding other potential alterations which might result from consideration of the Fukushima-derived information, can serve to bootstrap the contention into raising any such different environmental situation. As Entergy observes and demonstrates through its experts’ declarations, Pilgrim Watch’s claims simply implicate no specific environmental impact

⁵⁸ And, in this regard, Pilgrim Watch’s expert offers only speculation.

⁵⁹ Indeed, the Commission has concluded that the events of Fukushima do not present a sufficiently grave threat to public safety such that reactor licensing proceedings should be suspended, stating that “we do not believe that an imminent risk will exist during the time period needed to apply changes to operating plants.” Callaway, 74 NRC at __ (slip op. at 27).

changes.⁶⁰

The alleged deficiency of Entergy's SAMA analysis does not present an exceptionally grave issue (which must call into question the licensed activity)⁶¹ nor does it raise, based upon any information directly attributable to circumstances or conditions at the Pilgrim plant, any grave threat to the public safety respecting the Pilgrim plant,⁶² and, because it is also non-timely, the contention fails to satisfy the requirements of 10 C.F.R. § 2.326(a)(1). For this reason alone, this contention is inadmissible.

Pilgrim Watch also fails to satisfy the requirement of 10 C.F.R. § 2.326(a)(3) that the motion demonstrate that a materially different result would likely have been reached had its purported new evidence been considered initially. The "result" at issue in this proceeding is the outcome of the SAMA analysis. Neither Pilgrim Watch's pleadings, nor the declaration of its expert, Mr. Gundersen, offer anything which can reasonably be interpreted to "demonstrate" that other SAMAs would have been considered, even if Entergy's analysis had modeled aqueous distribution of radioactive materials.⁶³ To do so would have, at least, required Pilgrim Watch 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, together with at least some minimal information as to the cost of

⁶⁰ See Entergy Answer at 22-23.

⁶¹ See Hydro Res., Inc., CLI-00-12, 52 NRC 1, 5 (2000).

⁶² Indeed, Staff has pointed out that the Commission has recently held that when a motion to reopen is untimely, the exceptionally grave test (which is inherently a safety related test) supplants the significant environmental or safety test, and nothing raised by this SAMA contention, which does not regard safety matters at all, can reasonably be found to have any safety significance. Staff Answer at 21 (citing Vogtle, CLI-11-08, 74 NRC at ___ (slip op. at 14 n.44)).

⁶³ The Dissent's discussion of models which might have been used, of the marine economy in the region, and of other factors as a basis for a decision that an admissible contention has been presented errs; while all that information may well be interesting, it fails to be based upon any indication that there are events reasonably likely to cause the concerning releases at the Pilgrim plant. See Administrative Judge Ann Marshall Young, Dissenting (Jan. 11, 2012) at 7-11 [hereinafter Dissent].

implementation of other SAMAs it believes might become cost effective. Indeed Entergy's uncontested expert testimony supports its assertion that its present SAMA analyses consider releases via atmospheric pathways which cause substantially more environmental damage (thus creating situations which cause considerably greater costs) than would have been involved had part of the releases been via aqueous pathways.⁶⁴ This is not to say that Pilgrim Watch must prove its case at this point, but simply that the term "demonstrate" requires much more than the bare speculation and bare assertions offered. Thus none of the information provided by either Pilgrim Watch or its expert "demonstrates" that any different result of the Pilgrim SAMA analysis could be obtained by consideration of the asserted new information.

Pilgrim Watch's pleadings, and the declaration of Mr. Gundersen, have 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 Pilgrim Watch regarding the Fukushima accident been considered.⁶⁵

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

Moreover, Pilgrim Watch's motion is not supported by an affidavit that sets forth the factual and/or technical bases for the movant's claim that the criteria of 10 C.F.R. § 2.326(a) have been satisfied. The Gundersen declaration contains only bare speculation, presenting no facts or data to support its bald assertions. Moreover, 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

⁶⁴ Entergy Answer at 10, 22-23, 29-30, 43-44; Entergy Decl. ¶¶ 13-14, 40-64.

⁶⁵ See Entergy Answer at 25-27; Staff Answer at 29-30.

implement. Mr. Gundersen fails to address any other mitigative mechanism which he believes would be considered, and that is foundational to providing a factual or technical basis for the assertion that other mitigative measures would become cost effective. The present Pilgrim SAMA analysis (which is set out in the Environmental Report accompanying the LRA) plainly indicates both the cost of the most costly implemented SAMA and that the next most costly not-implemented SAMA which was considered has a cost approximately twice the most costly one which was implemented.⁶⁶ As we noted in our Commonwealth Post-Fukushima Order,⁶⁷ 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 some other mitigative mechanism. And, to perform the analysis would require information regarding how much the mean consequences would be altered by consideration of the facts Mr. Gundersen 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. 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. We also note that both Entergy and the Staff have raised sound challenges to Mr. Gundersen’s credentials as an expert with respect to the aqueous release issues and probabilistic risk analysis.⁶⁸ Although we need not make such a determination in order to reach the conclusions we reach herein, we find those arguments persuasive.

For the foregoing reasons, we find that the Declaration of Mr. Gundersen 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, thus failing to satisfy the requirements of 10 C.F.R.

⁶⁶ See Remanded Issue Order, 74 NRC at ___ (slip op. at 13); Entergy Answer at 44; Entergy Decl. ¶ 49.

⁶⁷ Commonwealth Post-Fukushima Order, LBP-11-35, at 58.

⁶⁸ Entergy Answer at 29-33; Staff Answer at 32-34.

§ 2.326(b).⁶⁹ For this additional (and independent) reason, we find the Pilgrim Watch contention inadmissible.

Because Pilgrim Watch has failed to meet the requirements of 10 C.F.R. § 2.326 for reopening the closed record, we find the Fukushima Aqueous Transport and Dispersion Contention to be inadmissible.

2. The Requirements for Non-Timely Filed Contentions

The new contention also fails to satisfy the requirements for a non-timely filed contention under 10 C.F.R. § 2.309(c) for the reasons set out by Staff and Entergy (with which we agree) in their respective Answers.⁷⁰ In particular, we find it fails to satisfy the following requirements, among others:

(a) Pilgrim Watch lacks good cause for its filing more than six months after the latest reasonable date for which the information upon which this contention rests could reasonably be considered new.⁷¹ Pilgrim Watch offers no rational basis for any decision excusing that tardiness. Thus the contention fails to satisfy the requirements of section 2.309(c)(i).

(b) Any extension to this proceeding to consider this matter would undoubtedly broaden the issues (by addition of an entirely new issue) and cause a material delay in the proceeding.⁷² Thus the contention fails to satisfy the requirements of section 2.309(c)(vii).

3. Contention Admissibility Criteria

Even if Pilgrim Watch had established that its new contention satisfies the reopening standards, or were correct in asserting that the reopening standards are inapplicable, Pilgrim Watch has failed to submit a contention which satisfies the requirements of 10 C.F.R.

⁶⁹ This is not, as the Dissent would have it, elevating form over substance; the requisite substance is absent. Dissent at 12.

⁷⁰ See Staff Answer at 12-13; Entergy Answer at 33-39.

⁷¹ See 10 C.F.R. § 2.309(c)(i).

⁷² See Id. § 2.309(c)(vii).

§ 2.309(f)(1)(iv) to “demonstrate” that the issue raised is material to the NRC’s decision, and § 2.309(f)(1)(vi) to show that a genuine dispute exists with the applicant on a material issue of law or fact.

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. Pilgrim Watch has made the bare speculation (supported by similar speculation on the part of its expert) that they believe that the NRC would consider other severe accident mitigation alternatives (SAMAs) than have been previously considered. But the requirement of § 2.309(f)(1)(iv) is that the contention must “demonstrate” that the issue raised is material to the NRC’s decision, and the speculative assertions of Pilgrim Watch and its expert simply do not rise to the level of demonstrating the matter. Therefore we find that Pilgrim Watch’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 Pilgrim Watch’s pleadings nor the Declaration of Mr. Gundersen 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 Pilgrim Watch nor Mr. Gundersen has indicated with any specificity how the SAMA analysis results could be affected. Rather the pleadings speculate that changes might result, and we find that fails to provide the requisite sufficient information which would “show” a dispute. In this regard, we note again that Entergy’s experts have stated (in uncontroverted testimony) that the consequences to human health and the environment from an atmospheric release, as modeled in Entergy’s current SAMA analysis, are far greater than those which could be expected from an aqueous release, and therefore consideration of aqueous releases would not increase the damages to the environment or increase the costs associated with the considered accidents, and therefore could not change

the results of the SAMA analysis.⁷³ Further, neither Pilgrim Watch nor Mr. Gundersen points to or references any specific portion of the application which is disputed; they simply assert that the SAMA results might be different. Indeed, as is noted by Entergy's expert Dr. O'Kula,⁷⁴ neither Pilgrim Watch nor Mr. Gundersen challenges the initiating event or equipment failure probability assumptions relied on in the Pilgrim SAMA analysis, or otherwise makes any attempt to relate the Fukushima accident (and its initiating events and equipment/system failures) to the Pilgrim plant.

Furthermore, Pilgrim Watch has failed to show any linkage between the accident at Fukushima and the Pilgrim plant—and thus offers nothing whatsoever to indicate (let alone “show”) a dispute with the application which refers explicitly and only to the Pilgrim plant and conditions which affect it. Pilgrim Watch makes bare assertions and assumptions that a Fukushima-like accident could be repeated at Pilgrim because of the similarity of plant design.⁷⁵ Although Pilgrim Watch devotes a significant portion of its pleadings to description of the Massachusetts Coastal Zone and the consequences it claims would result from a Fukushima-like accident at Pilgrim,⁷⁶ Pilgrim Watch provides no technical or scientific information to link the characteristics of the Fukushima Dai-ichi site, the causes of the accidents which concern it, or the operational methodologies of those plants to any characteristic of the Pilgrim plant and the surrounding environs. Pilgrim Watch fails to address a single portion of Entergy's Pilgrim analyses or the LRA, thereby failing to show that a genuine dispute exists with the applicant on a material issue of law or fact.

Moreover, if Pilgrim Watch meant, in the alternative, to point to an omission of

⁷³ See Entergy Answer at 29-31; Entergy Decl. ¶ 50; supra note 61.

⁷⁴ Entergy Decl. ¶ 39.

⁷⁵ See, e.g., Fukushima Aqueous Transport and Dispersion Contention at 22 (“Lessons learned from Fukushima provide a preview of what would happen at Pilgrim, a sister-reactor to those in Fukushima.”).

⁷⁶ See id. at 13-19, 22-37.

consideration of data from the SAMA input, they have failed.⁷⁷ From either perspective, Pilgrim Watch's contention fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(1)(vi).

For the foregoing reasons, Pilgrim Watch's Fukushima Aqueous Transport and Dispersion Contention fails to satisfy the requirements of 10 C.F.R. § 2.309(f)(1) and is therefore inadmissible.

4. A Few Comments Regarding the Dissent

Finally, we must bring to light a few specific fundamental disagreements with the Dissent. First, we find error in our colleague's conclusions that NEPA requires consideration of the Fukushima events as a condition to grant of the requested LRA. These conclusions rest upon the faulty premises that:

Although there may be insufficient information available at this time to conclude that consideration of issues relating to the Fukushima accident would definitely lead to significantly different analyses of environmental consequences in the Pilgrim EIS (including in the SAMA analysis summarized therein), there is also at this time 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. . . . [I]t cannot at this point be said that consideration of Fukushima-related issues "could not affect" the ultimate decision on the renewal application, or that any related impacts are so remote and speculative as to justify their exclusion from

⁷⁷ We have noted above, see supra note 26, a vague statement by Pilgrim Watch and a similarly vague "belief" by their expert, see supra p. 10; Entergy Decl. ¶ 24, which can be viewed as asserting an omission, but the Pilgrim Watch statement begins with reference to earlier assertions by Pilgrim Watch respecting containment failure, which we have rejected, and then adds the bare assertion respecting its present "bleed and feed" concern, without any data respecting Pilgrim or any other support (except the unsupported speculation by their expert) for their proposition that this is indeed an issue for the Pilgrim Plant. Were this sort of speculation to suffice to satisfy our regulatory criteria, there would be no boundaries to the issues to be litigated in our proceedings. Indeed, 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:

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.

Pac. Gas and Elec. Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-11-11, 74 NRC __, __ (Oct. 12, 2011) (slip op. at 42).

consideration.⁷⁸

[O]nce the accident [at Fukushima] happened, it presented new information, the “mechanisms and consequences” of which may not yet be fully understood or completely clear at this time, but which are significant enough with respect to the Mark I BWR reactor at the Pilgrim plant that issuing the renewed license without consideration of them would effectively run afoul of the requirements of NEPA.⁷⁹

[A] “‘hard look’ [must be taken] at the environmental consequences” of the renewal, and it can scarcely be said that this has been done with respect to Pilgrim and its Mark I BWR at this time, given the lack of any consideration in the Pilgrim EIS of information arising out of the accident at Fukushima.⁸⁰

To adopt our colleague’s view of the legal requirements would require the Staff to prove the absence of any environmental effects, having the legal effect of requiring the proof of a negative. Such an approach would, as we said in our Commonwealth Post-Fukushima Order, “stand adjudicative principles on their head.”⁸¹ Additionally, as we discussed at length in that Order and as is plainly unaltered by the present pleadings, absolutely no information from the Fukushima accidents has been presented in this proceeding from which it can reasonably be inferred that the accidents provide indicia of an impact on the Pilgrim plant or its environmental impact. Thus there is no environmental effect to be examined under NEPA respecting the proposed Federal action of issuing the requested LRA. Further, it is pure speculation to aver that there will be, at some unknown and unknowable time in the future, significant enough information arising from those accidents so as to require present delay of this license renewal decision.⁸² There is, thus, no foundation whatsoever for any assertion that Fukushima-derived

⁷⁸ Dissent at 13, 14.

⁷⁹ Id. at 18.

⁸⁰ Id. at 14.

⁸¹ Commonwealth Post-Fukushima Order, LBP-11-35, at 69.

⁸² As the Commission has noted in ruling on petitioners’ NEPA-related assertions, and our colleague explicitly acknowledged, 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 sufficient information arises.

[T]he rules cited by the rulemaking petitioners that reach “generic conclusions”

information provides any scientific support for the proposition that there are environmental effects of those circumstance or occurrences upon the license renewal for the Pilgrim plant—which is the singular “major Federal action” to which NEPA pertains in this proceeding. Moreover, as we have noted in earlier rulings, NEPA does not require the consideration of remote and speculative events or matters, and the possibility that there may arise at some future time information out of Fukushima which implicates an environmental consequence of renewal of the Pilgrim license cannot be described as anything but speculative. There is nothing to take a “hard look” at, and nothing which the Staff could reasonably consider when preparing its site-specific Pilgrim EIS.⁸³

We also find fatally flawed the Dissent’s conclusion that, while acknowledging and quoting the Commission’s explicitly stated position that for “licenses that the NRC issues before completing its [Fukushima] review, any new Fukushima-driven requirements can be imposed

(. . . continued)

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), 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.

Pacific Gas and Electric, CLI-11-11, 74 NRC at __ (slip op. at 36).

⁸³ We find that characterization of this contention by the Dissent as “premature” unjustifiably elevates the scientific foundation for the premise that the combination of incredible events that occurred at Fukushima have a substantial likelihood of occurrence at Pilgrim to an unwarranted level. The rationale for that characterization by the Dissent implies that there is today sufficient information to believe the issue will, given time, ripen to maturity, a postulate without foundation.

later, if necessary to protect the public health and safety,”⁸⁴ nevertheless “there are valid site-specific reasons for concluding that the sought license renewal herein does not fall within the category of licenses that should be so issued prior to consideration of Fukushima-related information.”⁸⁵ Being specific, the Dissent offers only two examples of those “site specific reasons”; the similarity of the reactors and the fact that the Pilgrim license is about to be renewed.

These examples simply are not “site specific” information. The fact that the Pilgrim plant also has a Mark I containment structure is generic, whereas the sort of site specific information which could be relevant would, for example, regard how that plant was adapted to the site, particular site characteristics, or specific characteristics of how the Pilgrim plant was constructed or how it is operated and maintained. Moreover, the fact of generic similarity of the plants advises nothing which presents any “site specific” comparisons or analogies between the Fukushima plants and the accident initiators which befell them, nor does it indicate anything substantive about the Pilgrim plant and its site. Similarly, the fact that the Pilgrim license is presently undergoing consideration for renewal is certainly not the sort of site specific information to which the regulations and case law refer.

Finally, we note the Dissent’s reliance upon a series of documents respecting the potential impacts upon the Pilgrim region of aqueous transport and dispersion of contaminants, but must point out that neither Pilgrim Watch nor any of the references to which it refers provides any information which indicates how the causes of the accidents at Fukushima might lead to the type of releases at Pilgrim which concern Pilgrim Watch because of the accidents at Fukushima, thus failing utterly to indicate the presence of any new information, environmental or safety, for the Pilgrim Plant. In this respect, the Dissent’s lengthy discourse on the technical information provided by Entergy and Pilgrim Watch (and its expert and the documents to which

⁸⁴ Dissent at 15 (quoting Callaway, CLI-11-05, 74 NRC at ___ (slip op. at 29)).

⁸⁵ Id.

they refer) misses the mark – while we have no doubt that the maritime economy in the region of the Pilgrim plant is as large as asserted, for those factors to be relevant to the Pilgrim SAMA analysis, there must be some indicia that the triggering events of the Fukushima accidents are relevant for Pilgrim and, as we have noted at length in this and our earlier orders, those indicia are entirely absent from the pleadings.

Further, we note that the Dissent's analysis of how the Pilgrim Watch pleadings satisfy the requirements of 2.326(a)(3) completely ignores the fundamental requirement of that provision that the information and pleadings must "demonstrate" that a materially different result would be or would have been likely. Her analogy to, and analysis under, the standards for defeat of a motion for summary disposition is simply inapposite. Nowhere in the Dissent's analysis does it address whether or not the pleadings rise to the level of demonstrating the likelihood of a different result, instead applying an inappropriate standard.⁸⁶

[Pilgrim Watch] provided sufficient information to defeat a summary disposition motion, by showing a genuine dispute on material issues including what the cost would be of aqueous contamination originating in the Pilgrim Plant and being dispersed into Cape Cod Bay and the surrounding Atlantic Ocean, and whether it could lead to an additional cost-beneficial SAMA.⁸⁷

This is an inappropriate standard by which to judge whether or not the exacting requirements of 2.326(a)(3) are satisfied; whether or not Pilgrim Watch showed a genuine dispute on a material issue it plainly has not demonstrated the likelihood of a materially different result – and the former, even if satisfied, cannot rationally be found to satisfy the latter.

III. CONCLUSION AND ORDER

For the foregoing reasons, we find that Pilgrim Watch's new contention fails to satisfy the

⁸⁶ "I address the issue of how well Pilgrim Watch meets the exacting 'materially different result' requirement of § 2.326(a)(3), analyzing this using the Commission's test of whether it has been shown that a motion for summary disposition could be defeated." Id. at 4.

⁸⁷ Id. at 10.

criteria for reopening a closed record under 10 C.F.R. § 2.326, as well as the contention admissibility criteria of 10 C.F.R. § 2.309(f)(1), each of which failures requires denial of this request for hearing by Pilgrim Watch. Pilgrim Watch's motion is therefore DENIED. The evidentiary record in this proceeding remains closed, and, as there are no pending contentions or remaining issues to be resolved by this Licensing Board, the proceeding is hereby TERMINATED.

It is so ORDERED.

THE ATOMIC SAFETY
AND LICENSING BOARD⁸⁸

/RA/

Dr. Paul B. Abramson
ADMINISTRATIVE JUDGE

/RA/

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

Rockville, Maryland
January 11, 2012

⁸⁸ Judge Young's dissenting opinion follows below.

Administrative Judge Ann Marshall Young, Dissenting

As I have done on a number of prior occasions in this proceeding, I again find I must dissent from the Majority decision. Based on the analysis set forth below, I find that Pilgrim Watch's November 18, 2011, contention¹ meets the reopening standards of 10 C.F.R. § 2.326 and is otherwise admissible, except that it is premature at this time under Commission case law. Further, I would not terminate this proceeding at this time, as I find that NEPA requires Fukushima-related issues to be addressed in this proceeding prior to a final decision on the Pilgrim license renewal application.

I note at the outset that it is somewhat anomalous, if not inconsistent, to be considering whether a contention has at the same time been submitted *early enough* to be admitted, and yet also *not too early* – thus placing intervenors, who already face high hurdles in achieving any rights to hearings in NRC proceedings, in an even more difficult position. But current controlling case law and regulation require this, and I thus consider both questions herein. In approaching the two separate analyses, I look first to the prematurity analysis that the Commission has established with respect to the unique circumstances associated with Fukushima-related issues, given that, if information is simply not yet sufficiently available and developed to adequately support a Fukushima-related contention, there would seem to be little point in extensively analyzing it according to the rather long list of criteria in the various subsections of 10 C.F.R. §§ 2.309 and 2.326. I nonetheless, in view of the Majority's rulings based on these latter requirements, provide a brief analysis of Pilgrim Watch's satisfaction of the reopening and contention admissibility standards, and find that, but for the question of the prematurity of the issues raised, it has met those requirements.

¹ Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post Fukushima (Nov. 18, 2011) [hereinafter PW Contention].

Prematurity of New Contention

On September 9, 2011, the Commission in CLI-11-05 ruled 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,” thus warranting a conclusion that a request for analysis whether the Fukushima events constitute “new and significant information” under NEPA was then “premature.”² Circumstances do not appear to have changed greatly since that time so as to warrant a conclusion to the contrary with respect to Pilgrim Watch’s new contention. Perhaps more to the point at this time, I note that in SECY-11-0089, on which Pilgrim Watch relies in support of its new contention, it is stated that the offsite radiological consequences of the release of “large volumes” of contaminated water at Fukushima are “yet to be determined.”³ Based on these considerations, I must find that Pilgrim Watch’s current Fukushima-related contention is premature at this time.⁴

² *Union Elec. Co. d/b/a/ Ameren Missouri* (Callaway Plant, Unit 2), CLI-11-05, 74 NRC ___ (Sept. 9, 2011) (slip op. at 29-30). As I have previously noted, although the Commission in these statements was addressing generic issues, *id.*, and expressly stated that in individual proceedings “litigants may seek admission of new or amended contentions,” *id.* at ___ (slip op. at 35), it also stated that “the current state of information” did not present “a seriously different picture of the environmental impact” of a proposed project in an application-specific context. *Id.* at ___ (slip op. at 30); see *id.* at ___ (slip op. at 30-31). The Commission’s prematurity analysis would thus reasonably seem also to be applicable in individual proceedings such as this one.

³ See *infra* notes 9, 28, and accompanying text.

⁴ I note further with respect to the prematurity analysis of CLI-11-05 that, subsequent to the July 12, 2011, issuance of the Near-Term Task Force Report, 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) [hereinafter Near-Term Task Force Report], the Commission directed the NRC Staff to “implement without delay” certain of the Task Force’s recommendations. 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). Given, however, that the deadline set by the Commission for completion of this task is the year 2016, *id.*, this would not seem to be sufficient to change the Commission’s conclusion on prematurity as stated in CLI-11-05. (I would observe, however, that this does not necessarily mean that information on Fukushima could not become sufficiently developed to warrant the filing of contentions prior to 2016). See *a/so* Staff (continued. . .)

Admissibility of Contention Under Reopening Standards and Other Relevant Requirements

With respect to the reopening standards,⁵ the NRC Staff⁶ and Entergy⁷ and its experts⁸ argue that the new contention is untimely under § 2.326(a)(1), because the factual support for the contention was publicly available long before the contention was filed – both as to the lack of modeling of aqueous transport and dispersion of radionuclides in the MACCS2 code used for the SAMA analysis, as well as to such transport through the “feed and bleed” phenomenon at Fukushima. Although Pilgrim Watch relies on the September 21, 2011, Commission vote on SECY-11-0089⁹ (regarding which Entergy and Staff also raise timeliness challenges), even assuming such reliance to be timely, there are certainly questions on the extent to which this may be said to completely overcome the earlier availability of information on the MACCS2 Code not modeling aqueous transport and on the “feed and bleed” phenomenon at Fukushima. These considerations also bring into question timeliness issues under § 2.309 subsections (c)

(. . .continued)

Requirements Memorandum – SECY-11-0137 – Prioritization of Recommended Actions to be Taken in Response to Fukushima Lessons Learned (Dec. 15, 2011) (ADAMS Accession No. ML1134900550).

⁵ On the applicability of the reopening standards, see LBP-11-20, 74 NRC __, __ (Aug. 11, 2011) (Administrative Judge Ann Marshall Young, Concurring in Part and Dissenting in Part) (slip op. at 1-3, 4, 7) [hereinafter LBP-11-20 Concurrence and Dissent].

⁶ NRC Staff’s Answer in Opposition to Pilgrim Watch’s Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post Fukushima (Dec. 13, 2011) at 6-12, 21.

⁷ Entergy’s Answer Opposing Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post-Fukushima (Dec. 13, 2011) at 11-17.

⁸ Declaration of Mr. Joseph R. Lynch and Dr. Kevin R. O’Kula in Support of Entergy’s Answer Opposing Pilgrim Watch Request for Hearing on a New Contention Regarding Inadequacy of Environmental Report, Post-Fukushima (Dec. 13, 2011) at 9-13 [hereinafter Lynch, O’Kula.Declaration].

⁹ See, e.g., PW Contention at 2 n.1 (citing SECY-11,0089, Enclosure 1 at 29, available at <http://www.nrc.gov/reading-rm/doccollections/commission/secys/2011/2011-0089scy.pdf>; Commission Voting Record, Decision Item SECY-11-0089 (Sept. 21, 2011), available at <http://www.nrc.gov/reading-rm/doc-collections/commission/cvr/2011/2011-0089vtr.pdf>).

and/or (f)(2)(i)-(iii). On the other hand, the issues raised by Pilgrim Watch in the new contention appear to me to be exceptionally grave, so as to override any untimeliness under § 2.326(a)(1), as well as significant, as required by § 2.326(a)(2), based on the following analysis.

At this point I address the issue of how well Pilgrim Watch meets the exacting “materially different result” requirement of § 2.326(a)(3), analyzing this using the Commission’s test of whether it has been shown that a motion for summary disposition could be defeated.¹⁰

Mr. Lynch and Dr. O’Kula in their Declaration provide lists of the identifying numbers of the accident scenarios leading to atmospheric source terms that are modeled in the Pilgrim SAMA analysis, along with the ratios of the postulated releases of each to current estimates of releases from Fukushima, indicating that the postulated releases would result in much larger off-site consequences than those estimated to date with respect to Fukushima.¹¹ They also provide

¹⁰ See LBP-11-20 Concurrence and Dissent (slip op. at 4) (citing *Entergy Nuclear Vermont Yankee, LLC* (Vermont Yankee Nuclear Power Station), CLI-11-02, 73 NRC __, __ (Mar. 10, 2011) (slip op. at 15); 10 C.F.R. § 2.1205). See also CLI-10-11, 71 NRC __, __ (Mar. 26, 2010) (slip op. at 11-13, 21), for the Commission’s discussion and application of the summary disposition standards in this case, in remanding Pilgrim Watch Contention 3. Contention 3 as admitted involved claims including that the MACCS2 code modeling does not fully take into account accurate meteorological factors and, interestingly, did not include any showing of exactly how any changes would alter the ultimate SAMA cost-benefit conclusions. See LBP-11-23, 74 NRC __ (Sept. 8, 2011) (Administrative Judge Ann Marshall Young, Concurring in Part and Dissenting in Part) [hereinafter LBP-11-23 Concurrence and Dissent], in which I stated:

. . . Pilgrim Watch was unable with respect to Contention 3 to show whether or how the outcome of the SAMA cost-benefit conclusions would be changed, but the Commission nonetheless reversed the summary disposition ruling and remanded for a new hearing on parts of the original contention. That ruling implicitly acknowledged that it is, as a practical matter, unreasonable to expect, even in a reopening context, any intervenor, even one with large resources, to challenge particular minute and complex calculations and computer modeling in a SAMA analysis on the level Entergy and Staff seek to require at this point.

LBP-11-23 Concurrence and Dissent (slip op. at 51) (citing CLI-10-11, 71 NRC at __ (slip op. at 18-19)). In overturning the majority’s grant of summary disposition in part, the Commission directed that this issue be part of the hearing on remand. See CLI-10-11, 71 NRC at __ (slip op. at 23, 27, 36-39).

¹¹ See Lynch, O’Kula Declaration at 30-37. I would note that, to the extent Entergy’s and its experts’ arguments to the effect that no accident similar to the one that occurred at Fukushima (continued. . .)

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is likely to occur at Pilgrim (which are not unpersuasive in themselves), see, e.g., Entergy Answer at 2, 21; Lynch, O’Kula Declaration at 6-8, 13-21, might in any way or at any level be intended or read as somehow suggesting that virtually no Fukushima-related contention could ever be admissible with respect to Pilgrim, I would find that suggestion to be unpersuasive. Aspects of information arising out of Fukushima might be relevant to particular possible equipment failures, or to the understanding of station blackout and related issues, to state just two examples of matters that might be subjects of Fukushima-related contentions.

For another example, one need only look to the basic nature of a SAMA analysis. I have previously noted the NRC Staff’s explanation of this concept:

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.

LBP-11-35, 74 NRC __, __ (Nov. 28, 2011) (Administrative Judge Ann Marshall Young, Concurring in Results Only) (slip op. at n.9) (quoting 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) [hereinafter LBP-11-35 Concurrence]. As I therein pointed out:

How the probabilities used in [a SAMA] 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 [more complete] 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 conservatism 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.

Id. at n.9. Contentions might obviously be based on assertions that certain SAMA input data or modelling were incorrect, with particular consequences (without necessarily having to demonstrate that they would make a new SAMA cost-beneficial).

statements on the relative significance of aqueous transport of radionuclides as compared to atmospheric transport in the event of an accident.¹² They argue that “the radiological consequences from the atmospheric releases assumed in the Pilgrim SAMA analysis are greater than the consequences that may result from the aqueous releases asserted by Pilgrim Watch,”¹³ provide rather detailed explanations of the nature of the atmospheric releases, and contend that “the releases of contaminated water into Cape Cod Bay that Pilgrim Watch asserts must be considered in the Pilgrim SAMA analysis would not result in [population dose risk (PDR)] and [off-site economic cost risk (OECR)] consequences remotely approaching those assumed in the SAMA analysis.”¹⁴ Further:

Releases of contaminated water into Cape Cod Bay will not result in immediate, direct exposures to people, and therefore would not result in corresponding costs to be considered in the SAMA analysis. Similarly, contaminated water released into Cape Cod Bay will not result in PDR and OECR consequences anywhere near as large as those that will occur in the heavily populated areas 10-50 miles from the Pilgrim plant in the long-term phase of the SAMA analysis. In other words, for example, there will be comparatively very minimal PDR consequences because (1) there will be minimal dose incurred as a result of inhalation (the release is not airborne) or shoreline exposure (limited number of persons near or on Cape Cod Bay compared to those on land); and (2) there will be minimal water and food ingestion doses (saltwater is not potable, and marine foodstuff consumption will be interdicted by State and Federal agencies until water concentration levels are deemed safe).¹⁵

Continuing, Entergy experts argue that swimming, fishing, boating and eating fish and shellfish are “amenable to interdiction” and therefore “uptake by humans and long-term effects would be small,”¹⁶ and that after “ten half-lives (96.5 days) the concentration of an aqueous

¹² See Lynch, O’Kula.Declaration at 22-30.

¹³ *Id.* at 22.

¹⁴ *Id.* at 26 ¶ 46.

¹⁵ *Id.*

¹⁶ *Id.*

release of contaminated water would be less than 0.1% of the original concentration.”¹⁷ It is acknowledged that “some costs could be conservatively estimated to account for temporary lost maritime business and limits on shoreline use,” but asserted that these would be “considerably smaller” than the costs for one of the postulated accident scenarios analyzed in the SAMA analysis, suggesting that they would not be enough to make another SAMA cost-beneficial, which would require at least 2.2 times the current estimated cost-avoided figure of \$2,410,000 (*i.e.* an additional \$2,892,000).¹⁸

These statements do not, however, address in any detail the information Pilgrim Watch and Mr. Gundersen provide, in great detail, on the ways in which aqueous transport could have negative environmental and other offsite consequences, citing not only SECY-11-0089 but also various other reports and modeling information on water circulation and related issues in and around Cape Cod Bay.¹⁹ Indeed, Pilgrim Watch cites a 2006 analysis by the University of Massachusetts, according to which “[t]he maritime economy in Massachusetts generated \$14.8 billion dollars in 2004, including \$6.1 billion in secondary output impacts (jobs created in the rest of the state through the functioning of the maritime economy).”²⁰ It points out that the “maritime

¹⁷ *Id.* at 25.

¹⁸ *Id.* at 27-28.

¹⁹ See PW Contention at 12-37; Declaration of Arnold Gundersen Supporting a Request by Pilgrim Watch for a New Contention Hearing Regarding the Inadequacy of Pilgrim Station’s Environmental Report, Post Fukushima (Nov. 17, 2011) at 4-5, 8-12 [hereinafter Gundersen Declaration]. I note that Mr. Gundersen’s credentials as an expert on aqueous releases and PRA have been challenged, see Majority Decision at 18 (citing Entergy Answer at 29-33, Staff Answer at 32-34), but do not find this challenge persuasive. Mr. Gundersen has 39 years of nuclear industry experience and a master’s degree in nuclear engineering, which together clearly establish his expertise on the matters on which he has written in his Declaration. See PW Contention, Exhib. 2, Curriculum Vitae, Arnold Gundersen. In addition, his expertise on aqueous releases would seem to be no less extensive than the expertise on that subject of Entergy’s experts, neither of whom claim any particular expertise on aqueous release issues apart from dose pathways. See Lynch, O’Kula Declaration at 3.

²⁰ PW Contention at 25 (emphasis added); see *id.* at 23; Gundersen Declaration at 4-5 (citing *An Assessment of the Coastal and Marine Economics of Massachusetts*, 29 RFR #: ENV 06 (continued. . .))

sectors include: commercial seafood, transportation, coastal tourism and recreation, marine science and technology, and marine related construction and infrastructure.”²¹

With respect to marine science, Mr. Gundersen cites “sophisticated and readily available models that Entergy could use to track the likely path and dilution of discharges into Cape Cod Bay,” including the Marine Ecosystem Dynamics Modeling Laboratory (MEDML) at the School for Marine Science and Technology, University of Massachusetts–Dartmouth,” which has a “research team focusing on coastal and estuary circulation, frontal dynamics, bio-physical interaction, suspended sediment processes, and ecosystem modeling.”²² According to Mr. Gundersen, this team has developed “a model, described as an unstructured grid, Finite-Volume, primitive equation Community Ocean Model (FVCOM) that is specifically designed to simulate the circulation and ecosystem dynamics particularly for regions near Pilgrim that are characterized by irregular complex coastlines, islands, inlets, creeks, and inter-tidal zones.”²³ Furthermore, he points out, this team has collaborated with scientists at the Woods Hole Oceanographic Institution (which is located in the southwestern part of Cape Cod²⁴) to build “an integrated high-resolution model system that is capable of hindcasts, nowcasts, and forecasts of

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CZM 09, Massachusetts Office of Coastal Zone Management (CZM), University of Massachusetts President’s Office, Donahue Institute, Amherst, Massachusetts (June 29, 2006), found at <http://www.massbenchmarks.org/publications/studies/pdf/czmreport1.pdf> (last visited Jan. 10, 2012)). An examination of the cited document reveals that it does indeed, at page 6, provide the figures cited by Pilgrim Watch. Pilgrim Watch and Mr. Gundersen also cite the Massachusetts Ocean Management Plan, which relies on the Donohue Institute document. PW Contention at 23; Gundersen Declaration at 5 (citing Massachusetts [Ocean] Management Plan, Vol. 2, Baseline Assesment and Science Framework (Dec. 2009), found at <http://www.env.state.ma.us/eea/mop/final-v2/v2-text.pdf> (last visited Jan. 10, 2012)).

²¹ PW contention at 25.

²² Gundersen Declaration at 10.

²³ *Id.*

²⁴ See <http://www.whoi.edu/page.do?pid=9297> (last visited Jan. 10, 2012).

circulation and key ecosystem processes in coastal oceans and estuaries that would be valuable for Pilgrim's SAMA analysis."²⁵ Additional collaboration with scientists at the Massachusetts Institute of Technology has led to the implementation of "both ensemble and reduced Kalman filters into FVCOM to build a modelbased observing and predict[ing] coastal ocean system," according to Gundersen.²⁶

Gundersen asserts further that:

Because pollutant transport is affected by factors that are highly variable over time, it is important that Entergy model over at least a 5-year time period, and use the 95% percentile, and not simply the mean. For example, winds affect the direction and strength of currents. Strong winds, seen more frequently in winter and during years with more frequent storms, serve to mix the water column affecting the dilution of contaminants. River discharges also affect current direction and that varies from year to year depending upon the extent of snow and fresh water melt into the Gulf of Maine and Massachusetts Bay. Therefore, in my opinion, a single year's worth of data cannot provide a sufficiently conservative data set for the purposes of Pilgrim's SAMA analysis. Additionally, it is important that a 95th percentile analysis, not one simply based on a mean, be used to provide a reasonable estimate of potential risk and costs. The data affecting contaminant dispersion and dilution would have to be averaged in order to be input into a model, but a mean-based analysis would totally obscure the real risk. The SAMA analysis would be functionally dependent on the choice of statistical input parameter or average.

. . . .

We know that the impact of Fukushima on Japan, and on its marine-dependent industry has been staggering. Converting Japanese Yen to US dollars in order to assess the economic impact of such an accident at Pilgrim Station shows that Price Anderson insurance limits will be exceeded to pay compensation for damages, much of which is due to marine dependent industry losses.²⁷

I note also that Mr. Gundersen cites and relies on the following language from SECY-11-0089:

An important limitation of MACCS2 is that it does not currently model and analyze the aqueous transport and dispersion of radioactive materials through surface water, sediments, soils, and groundwater. As demonstrated by the recent events in Japan, certain accident scenarios can result in large volumes of contaminated water being generated by emergency measures to cool the reactor cores and SFPs, with yet to be determined offsite radiological consequences. To

²⁵ Gundersen Declaration at 11.

²⁶ *Id.*

²⁷ *Id.* at 11-12.

determine the relative risk significance of these types of scenarios, a Level 3 PRA must be capable of modeling and analyzing the aqueous transport and dispersion of radioactive materials. This has therefore been identified as an important technical gap to be addressed²⁸

With respect to connecting the aqueous transport issue to any posited accident at the Pilgrim plant, I note that Pilgrim Watch has incorporated by reference its May 11 and June 1, 2011, contentions.²⁹ I previously found the second of these to be admissible (prior to the Commission's issuance of CLI-11-05), in my Concurrence and Dissent to LBP-11-23.³⁰ I also now find that the matters put forth in and in support of Pilgrim Watch's June 2011 contention, in conjunction with the current contention, provide a sufficient connection between containment failure and failure of the direct torus vent to operate (as raised in the June 2011 contention), on the one hand, and consequences including those asserted in and in support of the current contention, on the other.

Based on the preceding, among other information provided by Pilgrim Watch and Mr. Gundersen, I conclude that they have provided sufficient information to defeat a summary disposition motion, by showing a genuine dispute on material issues including what the cost would be of aqueous contamination originating in an accident at the Pilgrim Plant and being dispersed into Cape Code Bay and the surrounding Atlantic Ocean, and whether it could lead to an additional cost-beneficial SAMA.³¹ The information from the University of Massachusetts

²⁸ SECY-11-0089, Options for Proceeding with Future Level 3 Probabilistic Risk Assessment Activities (July 7, 2011); see Gundersen Declaration at 8-9.

²⁹ PW Contention at 8.

³⁰ See LBP-11-23 Concurrence and Dissent.

³¹ Taking Entergy's figures, leading to the need to demonstrate at least an additional \$2,892,000 in averted costs, see *supra* at 7, and comparing them to the \$14.8 billion figure for the Massachusetts maritime economy for a year provided in the University of Massachusetts study, using a fraction of that yearly figure to conservatively assume that, for example, only one tenth of the whole maritime economy of Massachusetts would be affected, and then taking one fourth of that to represent approximately the 96.5 days Entergy estimates negative impacts would continue, produces a figure of \$370,000,000 – far greater than \$2,892,000. Even considering (continued. . .)

study on the generation of \$14.8 billion in 2004, cited by Mr. Gundersen and Pilgrim Watch, clearly raises a material dispute with respect to the Pilgrim SAMA analysis, even if the same might not be true with respect to population dose risk, and notwithstanding Entergy's (relatively less specific) assertions that *any* consequences of aqueous dispersal would be less than those of atmospheric releases.

I also find that the preceding information, particularly that relating to impacts on the maritime environment and economy in the area surrounding the Pilgrim plant, presents a significant and exceptionally grave issue that outweighs any questions on timeliness. Obviously, if there were an accident at the Pilgrim plant with consequences including releases of contaminated water, the results could be catastrophic, and I find that Pilgrim Watch has provided information that "paint[s] a seriously different picture of the environmental landscape,"³² were there to be the sort of aqueous releases addressed in its new contention. Moreover, based on the same information presented, summarized, and/or referenced above, I would find that other relevant criteria for admission of the current contention have been met, with the

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this in a context of a healthy and robust economy, the impacts would seem to be, as Mr. Gundersen estimates, "enormous." See Gundersen Declaration. However these economic costs may be considered and compared with the costs of atmospheric releases (including Entergy experts' suggestion that *any* consequences from atmospheric releases would be reduced by any aqueous release consequences, see Lynch, O'Kula Declaration at 8, 29), and however they might be affected by any further mathematical computations that are part of the SAMA analysis, neither Entergy nor the NRC Staff has addressed the specific information on impacts to the maritime economy provided by Pilgrim Watch, which has certainly demonstrated a genuine issue of material fact with this information, in combination with other information provided in the current contention and in its June 2011 contention.

³² See *Callaway*, CLI-11-05, 74 NRC at ___ (slip op. at 31).

exception of a lack of support in the form of information from Fukushima that has been sufficiently collected and developed to warrant consideration at this time.³³

On the reopening standards, I note one additional point. In the same vein as I discussed in my concurrence and dissent to LBP-11-20, I recognize that Mr. Gundersen has not specifically identified the statements in his Declaration as addressing the reopening standards of 10 C.F.R. § 2.326, but do not find this negates a conclusion that Pilgrim Watch, with Mr. Gundersen, has demonstrated, in reality, that the standards have been met. In my view, to rule otherwise would be to elevate form over substance.³⁴

I would find, in the end, that Pilgrim Watch has demonstrated, in the combination of its June and November 2011 contentions, genuine disputes of material fact that should be addressed in an appropriate manner prior to issuance of any ultimate decision on the Pilgrim license renewal application. In my view, there is no question but that Pilgrim Watch has presented and supported its current contention, when taken in combination with its June 2011 contention, sufficiently that the issues raised therein warrant further inquiry, when enough information on Fukushima is available to permit this to be done effectively. I would therefore refrain from terminating this proceeding and making an ultimate decision on the renewal application until information on the Fukushima accident becomes sufficiently clear for appropriate consideration that would permit a more meaningful, fully-reasoned decision on the application. At such time, Pilgrim Watch (as well as the State of Massachusetts) should be able to update contentions, and perhaps submit new ones, relating to information arising out of the

³³ This would include a finding that a balancing of the factors found at 10 C.F.R. § 2.309(c)(1) would warrant admitting the contention despite its untimeliness, but for the prematurity issues addressed above.

³⁴ See LBP-11-20 Concurrence and Dissent (slip op. at 7).

Fukushima accident, to an extent and level of specificity that would warrant more in-depth and meaningful analysis.

NEPA Considerations on Termination of Proceeding

In my estimation, terminating this proceeding at this time would be to essentially disregard relevant requirements of the National Environmental Policy Act (NEPA). Pertinent Fukushima-related issues should be addressed with respect to the Pilgrim license renewal application, given 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."³⁵ Although there may be insufficient information available at this time to conclude that consideration of issues relating to the Fukushima accident *would* definitely lead to significantly different analyses of environmental consequences in the Pilgrim EIS (including in the SAMA analysis summarized therein),³⁶ there is also at this time 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. And I find that both Pilgrim Watch and the Commonwealth of Massachusetts have shown that it is reasonably foreseeable that consideration of information arising out of the Fukushima accident *could* have such an effect with respect to the Pilgrim plant.³⁷

³⁵ *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)).

³⁶ 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.

³⁷ See *supra* section on Admissibility of Contention Under Reopening Standards and Other Relevant Requirements; LBP-11-23 Concurrence and Dissent; LBP-11-35 Concurrence; (continued. . .)

As I have previously noted,³⁸ it cannot at this point be said that consideration of Fukushima-related issues “could not affect” the ultimate decision on the renewal application, or that any related impacts are so remote and speculative as to justify their exclusion from consideration.³⁹ Thus I find the appropriate course of action at this point is to refrain from terminating this proceeding, and from finally deciding on the renewal application until sufficient Fukushima-related information is available to permit consideration of “every significant aspect of the environmental impact”⁴⁰ of renewal – including those relating to Fukushima – so as to be able to “inform the public that it has indeed considered environmental concerns in its decisionmaking process,”⁴¹ which is not completely possible at this time. To be sure, it is not necessary that “every alternative device and thought conceivable by the mind of man” be considered in this endeavor.⁴² But a “‘hard look’ [must be taken] at the environmental consequences”⁴³ of the renewal, and it can scarcely be said that this has been done with respect to Pilgrim and its Mark I BWR at this time, given the lack of *any* consideration in the Pilgrim EIS of information arising out of the accident at Fukushima, with its Mark I boiling water reactors.

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Robertson, 490 U.S. at 354-56. I do not find a showing of certainty in this regard, such that “there is today sufficient information to believe the issue will, given time, ripen to maturity” without question, see Majority Decision at n. 83, but rather simply that it is “reasonably foreseeable” that information arising out of Fukushima could significantly affect the analysis in the Pilgrim EIS and SAMA analysis.

³⁸ See LBP-11-35 Concurrence (slip op. at 76).

³⁹ *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 737 (3rd Circ. 1989); see *id.* at 738-41.

⁴⁰ *Vermont Yankee Nuclear Power Corp. v. NRDC*, 435 U.S. 519, 553 (1978).

⁴¹ *Baltimore Gas*, 462 U.S. at 97.

⁴² *Vermont Yankee*, 435 U.S. at 551.

⁴³ *Baltimore Gas*, 462 U.S. at 97 (citing *Kleppe v. Sierra Club*, 427 U.S. 390, 410 n.21 (1976)).

Consideration of these issues should be undertaken by supplementing the Pilgrim EIS as soon as sufficient information is reasonably available, prior to a determination on the renewal application. Consideration may also be initiated through the filing of contentions at an appropriate time by parties who have already strongly indicated an interest and shown ability to do so. When sufficient information is available to permit such contentions, both Massachusetts and Pilgrim Watch might, as indicated above, be able to provide much more detailed and specific contentions and bases, focused more precisely on how such information would change specific parts of the Pilgrim EIS and SAMA analysis and warrant reopening of the record in this proceeding. It might also be that Fukushima-related matters relevant to license renewal of plants such as Pilgrim with Mark I BWRs are ultimately addressed by the Commission in a rulemaking that could specifically inform a decision on the renewal application (and which might also, either partially or fully, preclude the filing of additional contentions⁴⁴). But under NEPA, these significant matters must be considered, in one way or another, before agency action on the license renewal application.

The Commission has, I recognize, stated that, for “licenses that the NRC issues before completing its [Fukushima] review, any new Fukushima-driven requirements can be imposed later, if necessary to protect the public health and safety.”⁴⁵ However, over and above the requirements of NEPA,⁴⁶ there are valid site-specific reasons for concluding that the license renewal sought herein does not fall within the category of licenses that should be so issued prior to consideration of Fukushima-related information.

⁴⁴ See *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 345 (1999).

⁴⁵ *Callaway*, CLI-11-05, 74 NRC at ___ (slip op. at 29).

⁴⁶ See also 10 C.F.R. § 51.20(b)(2), which requires an EIS for the renewal of an operating license for a nuclear power reactor.

These include the fact noted above, and previously,⁴⁷ that the Pilgrim Mark I boiling water reactor has the same containment design as those at Fukushima. In addition, this proceeding is also unique, even among plants with Mark I BWRs in which license renewal proceedings may be currently pending, in that, if it is not held open until sufficient information on the Fukushima accident is available, the posture of the case is such that it is very likely action will be taken to grant the pending application in the very near future, thereby foreclosing the possibility of any pertinent Fukushima-related issues being addressed *at all*, in *any* manner, *before* the license is renewed for an additional 20 years. The EIS and the SAMA analysis would remain as they are, without *any* consideration of the impacts of Fukushima-related issues. And if, later, new information on the Fukushima accident were ultimately to reveal issues that might, for example, bring into question the propriety of the license renewal itself, approaching such issues only *after* issuing the renewed license would obviously be problematic. As argued by Pilgrim Watch, NEPA exists in part to “ensure[] that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.”⁴⁸

⁴⁷ See LBP-11-23 Dissent (slip op. at 3-5, 49, 54).

⁴⁸ PW Contention at 5 (quoting *Robertson*, 490 U.S. at 349). Pilgrim Watch also cites *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 371 (1989), for the principle that “it would be incongruous with NEPA’s ‘action-forcing’ purpose to allow an agency to put on ‘blindness to adverse environmental effects,’ just because the EIS has been completed.” *Id.* at 4. As the Court also stated:

. . . NEPA promotes its sweeping commitment to “prevent or eliminate damage to the environment and biosphere” by focusing Government and public attention on the environmental effects of proposed agency action. 42 U.S.C. § 4321. By so focusing agency attention, NEPA ensures that the agency will not act on incomplete information, only to regret its decision after it is too late to correct. See *Robertson*, 490 U.S. at 349. . . . As we explained in *TVA v. Hill*, 437 U.S. 153, 188, n.34 (1978), although “it would make sense to hold NEPA inapplicable at some point in the life of a project, because the agency would no longer have a meaningful opportunity to weigh the benefits of the project versus the detrimental effects on the environment,” up to that point, “NEPA cases have generally

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It is true, as I have previously noted,⁴⁹ that, but for the remand of Contention 3 in CLI-10-11,⁵⁰ the Pilgrim renewal application would no doubt have been granted some time ago. However, 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 potential severe accidents and 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, particularly given that the plant is a Mark I boiling water reactor. And at an appropriate point it will be *possible* to consider information from Fukushima as it may be relevant to Pilgrim, if a determination on the pending license renewal application is held in abeyance.

Taking this proceeding, then, where it now stands, if license renewal is to be a meaningful step *with respect to the Pilgrim plant*, the impact of Fukushima-related issues must be analyzed and satisfactorily concluded *prior to* an ultimate decision on the renewal application. Holding the proceeding open would permit this, while at the same time assuring that Pilgrim Watch, the Commonwealth and its citizens have their understandable interests and concerns addressed in an appropriate manner.

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required agencies to file environmental impact statements when the remaining governmental action would be environmentally 'significant.' ”

Marsh, 490 U.S. at 371-72 (also citing with approval and quoting from *Environmental Defense Fund v. TVA*, 468 F.2d 1164 (6th Cir. 1972), stating, “In that case the Court of Appeals upheld an injunction barring the continued construction of a dam on the Little Tennessee River pending the filing of an adequate EIS, notwithstanding the fact that the project was initially approved and construction commenced prior to the effective date of NEPA.” *Id.* at 372 n.15).

⁴⁹ See LBP-11-35 Concurrence at n.13.

⁵⁰ See CLI-10-11, 71 NRC __ (Mar. 26, 2010).

This approach would also comply with NEPA and the requirements of 10 C.F.R. § 51.20(b)(2). Although this would not have been required prior to Fukushima, once the accident happened, it presented new information, the “mechanisms and consequences” of which may not yet be fully understood or completely clear at this time, but which are significant enough with respect to the Mark I BWR reactor at the Pilgrim plant that issuing the renewed license without consideration of them would effectively run afoul of the requirements of NEPA. This would not be true with respect to *any* new information that arose. But the accident at the Fukushima Dai-ichi plant was clearly an out-of-the-ordinary, disastrous event, with continuing consequences, the magnitude and exact processes of which might not be completely clear at this time, but which are becoming clearer as time goes by.

Even considering the limited review involved in license renewal,⁵¹ 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, even if meaningful consideration might need to await some additional development of information. To the extent it is not evident at this point that significant Fukushima-related issues may well be quite relevant to the pending renewal application on Pilgrim and its Mark I BWR reactor, Pilgrim Watch has in its current contention shown a more than reasonable likelihood that relevant Fukushima-related information could in this proceeding lead to significantly different analyses and conclusions in the EIS and SAMA analysis. And I find that consideration of such information would be necessary in order to “fully take into account the environmental consequences” of renewing the Pilgrim operating license.⁵²

⁵¹ See *Callaway*, CLI-11-05, 74 NRC at ___ (slip op. at 26).

⁵² See *PFS*, CLI-02-25, 56 NRC at 348.

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 awaiting further development of Fukushima-related information should be minimized.⁵³ 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, if and to the extent possible, be effectively identified, addressed and, as appropriate, mitigated.

For the preceding reasons I urge the Commission to stay termination of this proceeding until relevant matters relating to the Fukushima accident may – whether through an updated EIS, timely new or amended contentions, and/or a relevant rulemaking – be addressed appropriately and sufficiently to permit a fully-reasoned decision on the Pilgrim renewal application, as required by relevant NEPA and NRC law and regulation.⁵⁴

⁵³ Obviously, Entergy has its own significant business interests that would be affected by holding the proceeding open, and they may be considered and balanced along with all other relevant factors. However, in such a balancing those interests would obviously not automatically outweigh the significant environmental issues that are at issue.

⁵⁴ It would also be appropriate to provide a 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)
)
ENERGY NUCLEAR GENERATION CO.)
AND)
ENERGY 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 Pilgrim Watch's Request for Hearing on a New Contention Relating to Fukushima Accident) (LBP-12-01)** 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 Pilgrim Watch's Request for Hearing
on a New Contention Relating to Fukushima Accident) (LBP-12-01)**

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Docket No. 50-293-LR

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**MEMORANDUM AND ORDER (Denying Pilgrim Watch's Request for Hearing
on a New Contention Relating to Fukushima Accident) (LBP-12-01)**

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[Original signed by Nancy Greathead]

Office of the Secretary of the Commission

Dated at Rockville, Maryland
this 11th day of January 2012