

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Commission

In the Matter of)	
)	
Entergy Nuclear Generation Company and)	Docket No. 50-293-LR
Entergy Nuclear Operations, Inc.)	ASLBP No. 06-848-02-LR
)	
(Pilgrim Nuclear Power Station))	

**ENTERGY’S ANSWER OPPOSING
PILGRIM WATCH’S REQUEST FOR REVIEW**

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Pursuant to 10 C.F.R. § 2.341, Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (collectively “Entergy”) submit this response in opposition to the Request for Review filed by Pilgrim Watch in the Pilgrim Nuclear Power Station (“PNPS” or “Pilgrim”) license renewal proceeding.¹ The Request seeks review of seven Atomic Safety and Licensing Board (“Board”) decisions issued in this proceeding: LBP-11-18, the Partial Initial Decision resolving the remanded portion of Pilgrim Watch Contention 3 in favor of Entergy,² and the following interlocutory Board Orders: (1) the Order dated September 2, 2010;³ (2) the Order dated September 23, 2010;⁴ (3) the Order dated October 26, 2010;⁵ (4) the Order dated November 23, 2010;⁶ (5) the Order dated February 22, 2011;⁷ and (6) the Memorandum and Order dated March

¹ Pilgrim Watch Request for Review of the Partial Initial Decision (Rejecting Upon Remand, Pilgrim Watch’s Challenge to Meteorological Modeling in SAMA Analysis in Entergy’s License Renewal Application) July 19, 2011 (Aug. 3, 2011) (“Request”).

² Partial Initial Decision (Rejecting, Upon Remand, Pilgrim Watch’s Challenge to Meteorological Modeling in SAMA Analysis in Entergy’s License Renewal Application), LBP-11-18, 74 N.R.C. ___, slip op. (July 19, 2011) (“LBP-11-18”). Administrative Judge Ann Marshall Young issued a separate statement (“Young Statement”) essentially concurring in the resolution of Contention 3 in favor of Entergy. Young Statement at 1.

³ Order (Scheduling Telephone Conference) (Sept. 2, 2010).

⁴ Order (Confirming Matters Addressed at September 15, 2010 Telephone Conference) (Sept. 23, 2010) (“September 23rd Order”).

⁵ Order (Questions from Board Majority Regarding the Mechanics of Computing “Mean Consequences” in SAMA Analyses) (Oct. 26, 2010).

⁶ Order (Ruling on Timeliness of Mean Consequence Issue) (Nov. 23, 2010).

3, 2011.⁸ As discussed more fully below, the Nuclear Regulatory Commission (the “Commission”) should deny the Request because Pilgrim Watch does not identify any substantial question warranting review under the standards of 10 C.F.R. § 2.341(b)(4). In particular, Pilgrim Watch fails to identify any error of fact or law in the Board’s decisions, which are clearly correct.

I. STATEMENT OF THE CASE

The full procedural history relevant to Pilgrim Watch Contention 3 is summarized in LBP-11-18 (slip op. at 2-8). At primary issue here is the Board’s July 19, 2011 Partial Initial Decision (LBP-11-18) that resolved the remanded portion of Contention 3 in Entergy’s favor.

As admitted by the Board, Contention 3 challenged certain input data used in Pilgrim’s severe accident mitigation alternatives (“SAMA”) analysis, specifically “input data concerning (1) evacuation times, (2) economic consequences, and (3) meteorological patterns” used in the analysis, claiming that the input data resulted in “incorrect conclusions about the costs versus benefits of possible mitigation alternatives.”⁹ Entergy moved for summary disposition of Contention 3, which a majority of the Board granted.¹⁰ On appeal, the Commission affirmed the summary disposition of Pilgrim Watch’s challenges to the input data for the evacuation times and economic costs used in the Pilgrim SAMA analysis for failing “to raise a genuine material dispute for hearing.”¹¹ The Commission “agree[d] with the majority that none of Pilgrim Watch’s arguments regarding evacuation speed and timing, traffic and other delays, shadow evacuation, etc., raise a genuine material dispute for hearing over the current evacuation times

⁷ Order (Addressing Joint Motion, Motion in Limine, Proposed Findings of Fact and Conclusions of Law/Concluding Statements of Position, and Argument to be held March 9, 2011) (Feb. 22, 2011) (“February 22nd Order”).

⁸ Memorandum and Order (Ruling on Timeliness of Mean Consequence Values Issue) (Mar. 3, 2011) (“March 3rd Order”).

⁹ Entergy Nuclear Generation Co., et al. (Pilgrim Nuclear Power Station), LBP-06-23, 64 N.R.C. 257, 341 (2006).

¹⁰ Entergy Nuclear Generation Co., et al. (Pilgrim Nuclear Power Station), LBP-07-13, 66 N.R.C. 131, 154 (2007).

¹¹ Entergy Nuclear Generation Co., et al. (Pilgrim Nuclear Power Station), CLI-10-11, 71 N.R.C. ___, slip op. at 27 (Mar. 26, 2010) (“CLI-10-11”).

assumptions in the Pilgrim SAMA analysis.” CLI-10-11 at 35 (footnote omitted). Similarly, the Commission “agree[d] with the majority’s conclusion that Pilgrim Watch failed to present significantly probative evidence countering the Entergy expert evidence and supplemental analyses on economic costs.” Id. at 36 (footnote omitted).¹² However, the Commission remanded for further inquiry the adequacy of the straight-line Gaussian plume model used in the MACCS2 code (a version of the MELCOR Accident Consequence Code System code) for performing SAMA analysis, including its ability to consider “sea breeze,” and the potential for plumes headed out to sea to change direction, remain tightly concentrated, and thus cause “hot spots” of radioactivity. CLI-10-11 at 14-26.

The Commission thus made clear that no material issues remained concerning Pilgrim Watch’s challenges to the evacuation times and economic costs aspects of the Pilgrim license renewal SAMA analysis. The Commission did indicate, however, that it would be “premature to dismiss entirely from this proceeding other portions of Contention 3 that may be linked to the adequacy of the meteorological modeling underpinning the SAMA analysis.” Id. at 26 (emphasis added). As the Commission explained,

if the Board on remand were to conclude that there is a material deficiency in the meteorological patterns modeling, the economic cost calculations also could warrant re-examination. We therefore remand the economic cost and evacuation time portions of Contention 3 to the Board, but only to the extent that the Board’s merits conclusion on meteorological patterns may materially call into question the relevant economic cost and evacuation timing conclusions in the Pilgrim SAMA analysis.

Id. at 27. The Commission then immediately reiterated,

¹² Entergy’s summary disposition motion established that, for any additional SAMA to become potentially cost effective, the baseline benefit, or the total cost avoided, would have to increase by more than 100%. Entergy’s Motion for Summary Disposition of Pilgrim Watch Contention 3 (May 17, 2007) at 10. Regarding evacuation time estimates, Entergy presented a bounding sensitivity analysis that demonstrated that, even if there were no evacuation or sheltering, the total cost risk would increase by only 2%. Id. at 18. With respect to the economic inputs, Entergy presented a sensitivity case that modified the input parameters for the value of nonfarm property to include data that specifically accounted for county and metropolitan area gross domestic product (accounting for tourism, business activity, and wages) and showed that the off-site economic cost risk would increase by only 2%. Id. at 26-27.

[i]nsofar as Pilgrim Watch raises distinct “economic costs” or “evacuation times” challenges that extend beyond its meteorological modeling concerns, we agree with the majority that Pilgrim Watch fails to raise a genuine material dispute for hearing. Accordingly, if the Board on remand concludes that there is no significant meteorological modeling deficiency calling into question the overall Pilgrim SAMA cost-benefit analysis conclusions, no genuine dispute concerning economic costs or evacuation timing inputs will remain.

Id.¹³

In CLI-10-22,¹⁴ seeking to “clarify matters and perhaps simplify the proceeding on remand,” the Commission noted that “the issue on remand focuses on the adequacy of the atmospheric dispersion modeling in the Pilgrim SAMA analysis, not the methodology or underlying assumptions used for *translating* the atmospheric dispersion modeling results into economic costs.” Id. at 7-8 (emphasis in original). The Commission also clarified that it had not “directed or otherwise *required* that the MACCS2 [code] computations be redone by varying the meteorological modeling in the code.” Id. at 8 (emphasis in original) (internal quotation omitted). In addition, the Commission stated that “it is not possible simply to ‘plug in’ and run a different atmospheric dispersion model in the MACCS2 code to see if the SAMA cost-benefit conclusions change.” Id. at 9. Further, the Commission advised that

If relevant or necessary meteorological data or modeling methodology prove to be unavailable, unreliable, inapplicable, or simply not adaptable for evaluating the SAMA analysis cost-benefit conclusions, there may be no way to assess, through mathematical or precise model-to-model comparisons, how alternate meteorological models would change the SAMA analysis results. Some assessments may necessarily be qualitative, based simply on expert opinion.

Id.

¹³ In response to Pilgrim Watch’s request for reconsideration, the Commission confirmed that neither the original Contention 3, nor the remanded Contention 3, includes the effects of a spent fuel accident, decontamination/interdiction clean-up costs, and health costs, which Pilgrim Watch asserted were part of the original contention. Entergy Nuclear Generation Co., et al. (Pilgrim Nuclear Power Station), CLI-10-15, 71 N.R.C. ___, slip op. at 3-7 (June 17, 2010) (“CLI-10-15”).

¹⁴ Entergy Nuclear Generation Co., et al. (Pilgrim Nuclear Power Station), CLI-10-22, 72 N.R.C. ___, slip op. (Aug. 27, 2010) (“CLI-10-22”).

Adhering to the Commission’s multiple rulings, the Board explained that it would “first consider whether the meteorological modeling in the Pilgrim SAMA analysis is adequate and reasonable to satisfy NEPA, and whether accounting for the meteorological patterns/issues of concern to Pilgrim Watch could credibly alter the Pilgrim SAMA analysis conclusions on which SAMAs are cost beneficial to implement.”¹⁵ The Board further advised that, if it determined that the meteorological modeling in the Pilgrim SAMA analysis is adequate and reasonable under NEPA, and no significant meteorological modeling deficiency exists that would call into question the Pilgrim SAMA cost-benefit analysis conclusions, then the Board’s action on the remand would be complete. *Id.* at 2. In a subsequent Order, the Board explicitly stated:

If the Board decides in favor of intervenors on the primary and threshold issue of whether the meteorological modeling in the Pilgrim SAMA analysis is adequate and reasonable to satisfy NEPA, and whether accounting for the meteorological patterns/issues of concern to Pilgrim Watch could, on its own, credibly alter the Pilgrim SAMA analysis conclusions on which SAMAs are cost-beneficial to implement (hereinafter referred to as the “meteorological modeling issues”), the hearing will proceed to consideration of whether, and the extent to which the admitted evacuation and economic cost issues should be adjudicated.

September 23rd Order at 1, 3 (emphasis in original).

In a subsequent ruling, the Commission stated that it saw “no ground for upsetting the Board’s decision” to bifurcate the hearing by first determining “whether the asserted deficiencies in meteorological modeling credibly could have had a material impact” on the Pilgrim SAMA analysis conclusions, and, if so, “then assess – to the extent reasonable – the degree to which any modeling deficiency may have materially affected the current economic cost and evacuation timing conclusions.”¹⁶

¹⁵ Order (Scheduling Telephone Conference) (Sept. 2, 2010) at 1.

¹⁶ Entergy Nuclear Generation Co., et al. (Pilgrim Nuclear Power Station), CLI-10-28, 72 N.R.C. ___, slip op. at 2 n.3 (Nov. 5, 2010) (“CLI-10-28”).

After consideration of expert testimony from Entergy and the NRC Staff and a statement of position and witness declarations from Pilgrim Watch, the Board resolved Contention 3 in Entergy's favor. LBP-11-18 at 1-2. Specifically, the Board found that "accounting for the meteorological patterns, atmospheric transport modeling, and data issues raised by Pilgrim Watch cannot credibly alter the Pilgrim SAMA analysis conclusions regarding which SAMAs are potentially cost beneficial to implement." *Id.* at 1. In a separate statement, Judge Young agreed that "the preponderance of the evidence presented on that part of Contention 3 currently at issue is to the effect that accounting for Pilgrim Watch's meteorological concerns would not on its own affect the [SAMA] analysis for the Pilgrim plant sufficiently to alter the conclusions on which SAMAs would be cost-beneficial to implement." Young Statement at 1. Because the Board found that "further refinements" to the meteorological data and straight-line Gaussian plume dispersion model "would not change the cost-benefit conclusions for the SAMA" analysis, the Board also ruled that "no consideration need be given to 'the economic cost and evacuation time portions of Contention 3.'" LBP-11-18 at 33, citing CLI-10-11 at 27.

On August 3, 2011, Pilgrim Watch requested Commission review of LBP-11-18 and the related interlocutory Board rulings.

II. STANDARD OF REVIEW

A petition for review is granted only at the discretion of the Commission, giving due weight to the existence of a "substantial question" with respect to the following relevant considerations: (i) a finding of material fact that is "clearly erroneous" or conflicts with a finding as to the same fact in a different proceeding; (ii) a necessary legal conclusion that is "without governing precedent" or "contrary to established law;" (iii) the raising of a "substantial and important question of law, policy, or discretion;" (iv) "the conduct of the proceeding involved a prejudicial procedural error;" or (v) the raising of "any other consideration which the Commission may

deem to be in the public interest.”¹⁷ An appeal that does not point to an error of law or an abuse of discretion by the Board, but simply restates the contention with additional support, will not meet the requirements for a valid appeal.¹⁸

When considering a petition for review, the Commission is free to affirm a Board decision on any ground finding support in the record, whether or not relied on or by the Board.¹⁹ The Commission will generally defer to the Board on its fact findings absent a showing that the Board’s findings were “clearly erroneous,” meaning that, in light of the record viewed in its entirety, the findings were not even plausible.²⁰ This standard is “quite high.”²¹ Where the Board has reviewed an extensive record in detail, the Commission is generally disinclined to upset its findings, particularly on matters involving fact specific issues or where the affidavits or submissions of experts must be weighed.²² For evidentiary matters, the Board has considerable discretion, and the Commission’s standard for review of evidentiary rulings is abuse of discretion.²³

III. THE COMMISSION SHOULD DENY THE REQUEST FOR REVIEW

Pursuant to 10 C.F.R. § 2.341, the Commission should deny the Request because, as set forth below, Pilgrim Watch has failed to identify any clear error of fact, error of law, procedural error, or abuse of discretion by the Board.²⁴ Among other fatal flaws, at hearing, Pilgrim Watch failed to meet its burden of going forward by failing to establish a prima facie evidentiary basis to support its contention. This failure undermines each claim Pilgrim Watch raises in its Re-

¹⁷ 10 C.F.R. § 2.341(b)(4) (emphasis added); Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation) (“PFS”), CLI-03-8, 58 N.R.C. 11, 17 (2003).

¹⁸ Shieldalloy Metallurgical Corp. (Amendment Request for Decommissioning of the Newfield, New Jersey Facility), CLI-07-20, 65 N.R.C. 499, 503-05 (2007).

¹⁹ PFS, CLI-05-1, 61 N.R.C. 160, 166 (2005) (redacted public version of decision) (citing federal precedent).

²⁰ PFS, CLI-05-16, 62 N.R.C. at 3.

²¹ PFS, CLI-03-8, 58 N.R.C. at 26-27.

²² Hydro Resources Inc. (P.O. Box 777, Crownpoint, New Mexico 87313), CLI-06-1, 63 N.R.C. 1, 2 (2006).

²³ Duke Energy Corp. (Catawba Nuclear Station, Units 1 and 2), CLI-04-21, 60 N.R.C. 21, 27 (2004).

²⁴ See also PFS, CLI-04-4, 59 N.R.C. 31, 35 (2004) (holding that the Commission may grant review if there is any clear error as to a material fact or a legal conclusion that conflicts with precedent).

quest. Pilgrim Watch can hardly contend that the Board ignored or excluded “evidence,” or made any procedural error or error of law, or otherwise abused its discretion when Pilgrim Watch put forward little if any evidentiary support for its position in the first place. Moreover, none of the multiple claims raised in the Request identifies any basis warranting Commission review of the Board’s rulings on Contention 3. None of Pilgrim Watch’s claims are premised on any clear error of material fact or legal conclusion in conflict with existing precedent.²⁵ Therefore, the Commission should reject Pilgrim Watch’s Request.

A. Pilgrim Watch Failed to Satisfy its Burden of Going Forward

Long established precedent holds that an intervenor has the burden of going forward with evidence to support its contention.²⁶ This means that the intervenor must establish a prima facie evidentiary case supporting its contention.²⁷ An intervenor cannot “sit back without introducing any evidence whatsoever” and must “produc[e] some evidence that tends to substantiate [its] contentions.”²⁸ As discussed below, Pilgrim Watch failed to meet its burden of going forward on the remanded portion of Contention 3, and this failure alone warrants denial of Pilgrim Watch’s Request. Further, as a result of its failure to meet its burden of going forward, Pilgrim Watch’s evidentiary claims on appeal ring hollow.

On January 3, 2011, Entergy and the NRC Staff filed their initial statements of position on Contention 3, pre-filed expert testimony, and pre-filed exhibits.²⁹ While Pilgrim Watch sub-

²⁵ 10 C.F.R. § 2.341(b)(4); PFS, CLI-04-4, 59 N.R.C. at 35-36.

²⁶ Louisiana Power and Light Co. (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 N.R.C. 1076, 1093 (1983); Philadelphia Elec. Co. (Limerick Generating Station, Units 1 & 2), ALAB-262, 1 NRC 163, 191 (1975); Commonwealth Edison Co. (Zion Station, Units 1 & 2), ALAB-226, 8 AEC 381, 388-89 (1974); Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-123, 6 A.E.C. 331, 345 (1973).

²⁷ Waterford, ALAB-732, 17 N.R.C. at 1093, citing Midland, ALAB-123, 6 A.E.C. at 345.

²⁸ Zion, ALAB-226, 8 AEC at 388. Id. at 389 (quoting comments of the licensing board chairman during hearing).

²⁹ Entergy’s submission included the Testimony of Dr. Kevin R. O’Kula and Dr. Steven R. Hanna on Meteorological Matters Pertaining to Pilgrim Watch Contention 3 (Jan. 3, 2011) (Exhibit No. ENT000001) (“Entergy Test.”); and multiple other pre-filed exhibits. The NRC Staff’s submission included the NRC Staff Testimony of Nathan E. Bixler and S. Tina Ghosh Concerning the Impact of Alternative Meteorological Models on the Severe Accident Mi-

mitted a document titled as Prefiled Testimony (and related exhibits),³⁰ that document was a position statement and not the testimony of any expert witness. Thus, Pilgrim Watch elected not to submit any direct testimony to support its position on the remanded contention, but rather only arguments unsupported by any qualified witness.³¹

Indeed, Pilgrim Watch had clearly stated a month earlier, in Pilgrim Watch Memorandum Regarding SAMA Remand Hearing (Dec. 2, 2010) (“PW Memo”), that it would “not present any new evidence at the upcoming SAMA Remand Hearing.” PW Memo at 1. Pilgrim Watch admitted that it would not be able to prove that the meteorological issues could, on their own, credibly alter the Pilgrim SAMA analysis, and asserted that it would be a “fool’s errand” for Pilgrim Watch to prepare additional materials for the remand hearing. Id. at 2-3.

On February 1, 2011, Entergy and the NRC Staff each filed rebuttal testimony,³² and Pilgrim Watch filed a further position statement and also a statement from its witness Dr. Bruce A. Egan.³³ Dr. Egan, however, did not offer testimony focused on the scope of the remand. As succinctly stated by Judge Young, although Dr. Egan “raised significant questions regarding meteorological modeling for purposes of emergency planning . . . [,] this is not part of what is at is-

tigation Alternatives Analysis (Exhibit No. NRC000014) (“Bixler & Ghosh Test.”); NRC Staff Testimony of James C. Ramsdell, Jr., Concerning the Impact of Specific Meteorological Conditions on the Severe Accident Mitigation Analysis (Exhibit No. NRC 000015) (“Ramsdell Test.”); and multiple other pre-filed exhibits.

³⁰ Pilgrim Watch’s submission consisted of a document styled Pilgrim Watch SAMA Remand Pre-Filed Testimony (Jan. 3, 2011) (“PW Statement”) and 21 pre-filed exhibits. Entergy requested that the Board exclude from evidence the PW Statement and exhibits, Entergy’s Motion in Limine to Exclude from Evidence Pilgrim Watch’s SAMA Remand Pre-Filed Testimony and Exhibits (Jan. 13, 2011), which the NRC Staff supported, NRC Staff’s Response in Support of Entergy’s Motion in Limine (Jan. 24, 2011), and Pilgrim Watch opposed. Pilgrim Watch Reply to Entergy’s Motion in Limine to Exclude From Evidence Pilgrim Watch’s SAMA Remand Pre-Filed Testimony and Exhibits (Jan. 23, 2011).

³¹ In addition, many of Pilgrim Watch’s exhibits or portions thereof were beyond the scope of the proceeding, as well as being unsupported by a qualified witness.

³² Entergy’s submissions included Rebuttal Testimony of Dr. Kevin R. O’Kula and Dr. Steven R. Hanna on Meteorological Matters Pertaining to Pilgrim Watch Contention 3 (Feb. 1, 2011) (Exhibit No. ENT000013) (“Entergy Reb. Test.”); The NRC Staff filed NRC Staff Rebuttal Testimony of S. Tina Ghosh Concerning Pilgrim Watch’s Application of NUREG-1150 and NUREG-1465 (Jan. 31, 2011) (Exhibit No. NRC000016) (“Ghosh Reb. Test.”).

³³ Pilgrim Watch submitted Pilgrim Watch’s Reply to Entergy’s and NRC Staff’s Initial Statement of Position on Pilgrim Watch Contention (Feb. 1, 2011) (“PW Reply”) and the Statement by Bruce A. Egan, ScD., CCM (Jan. 30, 2011) (“Egan Statement”).

sue in Contention 3.” Young Statement at 1 (emphasis added). Moreover, as further noted by Judge Young, Dr. Egan “does not dispute the statements of Entergy’s experts to the effect that accounting for Pilgrim Watch’s concerns regarding the meteorological analysis would not change the [SAMA analysis’] ultimate conclusions.” Id. at 2 (emphasis added). Thus, even the rebuttal statement of Pilgrim Watch’s witness provided no evidence on the threshold issue of Contention 3 on whether accounting for the meteorological patterns and issues of concern to Pilgrim Watch could, on its own, credibly alter the Pilgrim SAMA analysis conclusions on which SAMAs are cost beneficial to implement.³⁴

Moreover, in its January 3, 2011 position statement, Pilgrim Watch admitted that it could not meet its burden on this threshold question of Contention 3 on remand:

It is not possible for either Pilgrim Watch, or anyone else, to show that meteorology, *in and of itself*, would result in a significantly different SAMA analysis.

PW Statement at 2 (emphasis in original). In addition, Pilgrim Watch conceded that,

“on its own” using a variable plume model would not alter Entergy’s SAMA analysis.

Id. at 3. Therefore, Pilgrim Watch itself admits that it was unable to make any showing on the threshold issue of Contention 3. Based on this concession alone, the Commission should reject Pilgrim Watch’s Request.

On appeal, none of Pilgrim Watch’s evidentiary claims withstand scrutiny, particularly in light of its failure to establish a prima facie evidentiary case. Pilgrim Watch erroneously claims

³⁴ The Board granted the parties’ Joint Motion to resolve the threshold issue of Contention 3 without an evidentiary hearing, and Entergy’s Motion in Limine to the extent of excluding as evidence the PW Statement, stating that the Board would consider the PW Statement as argument in the nature of a statement of position. See February 22nd Order at 2. In addition, the Board ruled that it would admit all of the exhibits of the parties into the record (54 in total), but in its deliberations would accord each exhibit only the weight to which it is entitled, based on whether the exhibit is relevant, material, and reliable under 10 C.F.R. § 2.337(a), and otherwise persuasive on the threshold issue. Id.

that the Board excluded or ignored meteorological evidence presented by Dr. Jan Beyea and Mr. Wayne Angevine. Request at 6, 17-18. This is hardly the case. The Board expressly considered Pilgrim Watch's reference to the article written by Mr. Angevine, which concerned ozone pollutant transport along the New England coast, and Pilgrim Watch's claim that the same phenomena discussed by Angevine could result in "hot spots" of radioactivity after a radiological accident. LBP-11-18 at 28-29. The Board went on to note, however, that the so-called radiological "hot spot" effect "referred to by Pilgrim Watch" was supported "only through a discussion in a report prepared by Dr. Jan Beyea briefly mentioning the potential specter of 'Hot Spots' [of radioactivity] without any explanation or technical support." Id. at 29.³⁵ The Board found that Dr. Beyea, who "is not a meteorologist," "provide[d] no scientific rationale or discussion of his concern, nor does Pilgrim Watch provide that itself or through any other evidence." Id. (emphasis added).

Thus, the Board concluded that Pilgrim Watch had provided "no evidence based on technical data explaining or supporting [its] hypothesis" that "hot spots" could affect the SAMA cost-benefit determination. Id. The Board went on then to determine that Pilgrim Watch's unsupported hypotheses did not withstand Entergy's "uncontroverted expert testimony" that Pilgrim Watch's "hot spot" concerns will be minimized because the "concentration of a [radioactive] release . . . transported out to sea is then, if it returns to land, extremely diluted." Id. at 29-30. In sum, the Board did not exclude or ignore "evidence" but rather found that Pilgrim Watch had put forward no credible support for its position, which could not withstand uncontroverted expert testimony to the contrary refuting Pilgrim Watch's hot spot claims.

³⁵ As discussed in Entergy's rebuttal testimony, and not disputed by Pilgrim Watch, the Angevine study concerned ozone transport and not radioactive releases following a radiological accident. Entergy. Reb. Test. at A3. As explained by Dr. Hanna, there are many significant differences in the basic physics of the transport and dispersion for a point-source release, such as from the Pilgrim stack, and that for a broad ozone plume. Thus, the physics and chemistry for a broad ozone plume studied by Angevine are inapplicable for point source radiological plumes, such as those considered in the SAMA analysis. Id.

Pilgrim Watch also erroneously claims that the Board ignored NRC and Department of Energy documents that purport to show that a minimum of 5 years of hourly averaged meteorological data are needed. Request at 19. However, Pilgrim Watch and its witness Dr. Egan ignored and did not otherwise dispute Entergy's "uncontroverted evidence," relied upon by the Board, "demonstrating that the single year's worth of meteorological data" used in the SAMA analysis (because the MACCS2 code can only accept a single year of data) "is both temporally and spatially representative of other years' data." LBP-11-18 at 16. Likewise, Pilgrim Watch's claim that the Board improperly ignored its sea breeze exhibits (Request at 19), including the potential for a sea breeze to cause a radioactive plume to penetrate inland and result in increased radioactive dose, is meritless. The Board extensively discussed and rejected Pilgrim Watch's sea breeze claims. LBP-11-18 at 14-26, Pilgrim Watch does not controvert Entergy's testimony, relied upon by the Board, that the SAMA analysis "model[s] any plume initiated during a sea breeze event as continuing to travel in the same direction out to 50 miles," even though the plume "would generally penetrate only five to ten miles inland," and thus "conservatively accounts for the sea breezes by assuming that they had impacts throughout the 50-mile range." Id. at 18-19 (internal quotations omitted). Nor does Pilgrim Watch controvert Entergy and Staff testimony that "sea breezes during the day are generally offset by land breezes at night," such that their effects "more or less cancel each other." Id. at 21 (internal quotations omitted). In short, Pilgrim Watch's evidentiary claims on appeal do not challenge the Board's detailed findings.

Pilgrim Watch also asserts that the Board improperly received evidence and testimony from Entergy's and the NRC Staff's experts at the March 9, 2011 hearing. Request at 4-5, 15-16. These claims are baseless. Before the hearing, Pilgrim Watch agreed that parties would be permitted, but not required, to bring their witnesses to answer clarifying questions from the

Board. During the pre-hearing teleconference to discuss the parties' Joint Motion requesting resolution of the remanded issues without an evidentiary hearing (which was prompted by Pilgrim Watch's request to have Dr. Egan's statement admitted as an exhibit without requiring his presence at the hearing), the Board made clear that it would "let[] any party who want[ed] to have their witnesses available, have them there, but not requiring any party to bring their witnesses" in case the Board had any questions on the parties' proposed findings of fact and conclusions of law.³⁶ The Board believed that having witnesses available to answer clarifying questions would help move the proceeding along. *Id.* Pilgrim Watch's representative did not "have an objection to that" and agreed that it would not make any difference whether a witness was asked a question at the hearing or in writing following the hearing. *Id.* at 771. Accordingly, the Board issued an order directing that it would hear answers to Board questions on the parties' proposed findings of fact and conclusions of law, and short closing arguments from each party.³⁷ The Board's Order permitted parties to have their witnesses available at the oral argument to answer any clarifying questions that the Board may have, and indicated that any further issues would be addressed through written questions.³⁸ Pilgrim Watch was in agreement with this process from the outset, and cannot now claim any procedural error.

Moreover, although Pilgrim Watch claims that the Board "used that [hearing] evidence to support its Decision," Pilgrim Watch nowhere identifies any portion of the Board's decision that relies on witness testimony from the hearing. *See* Request at 4-5, 15-16. Indeed, the Board's decision references the March 9, 2011 hearing discussion only once. The Board cited some discussion during the hearing showing that the parties generally agreed with the Board's view that

³⁶ Prehearing Teleconference Transcript (Feb. 18, 2011) ("Tr.") at 770-71.

³⁷ February 22nd Order at 3.

³⁸ *Id.*

“it is not possible for improved modeling to cause the computed damages during the occurrence of the sea breeze to be larger than those of the median by more than a factor of 2,” although Pilgrim Watch’s representative stated that other meteorological variables ought to be considered. LBP-11-18 at 28 & n.125. Pilgrim Watch demonstrates no abuse of discretion because it is clear that the Board did not rely solely on the hearing testimony in making any of its findings.

In sum, Pilgrim Watch failed to meet its burden of going forward, and none of its evidentiary claims withstand scrutiny.³⁹ These claims offer no basis warranting Commission review.⁴⁰

B. The Board Appropriately Bifurcated the Issues on Remand

When remanding the limited portion of Contention 3 to the Board for hearing, the Commission made clear that Pilgrim Watch had failed to materially challenge evacuation times and economic costs aspects of Pilgrim’s SAMA analysis. The Commission was clear that the Board majority’s decision had erred only with respect to its rulings on the meteorological modeling issues. The Commission further explained that, if on remand the Board were to find a material deficiency in the meteorological patterns modeling, then the economic cost and evacuation time estimates conclusions could be called into question. CLI-10-11 at 26. As previously noted in the discussion of this proceeding’s background, the Commission explicitly stated that,

if the Board on remand concludes that there is no significant meteorological modeling deficiency calling into question the overall Pilgrim SAMA cost-benefit analysis conclusions, no genuine dispute concerning economic costs or evacuation timing inputs will remain.

Id. at 27 (emphasis added). Following this instruction, the Board determined that it would first consider “whether accounting for the meteorological patterns/issues of concern to Pilgrim Watch

³⁹ As demonstrated by the above discussion, Pilgrim Watch’s claim that the Board’s decision does not sufficiently set forth its bases because “[m]ost of PW’s evidence was excluded or ignored,” Request at 23-24, is unfounded.

⁴⁰ Pilgrim Watch introduces the issue “Incorrect Assumptions and Methodology, and Misreading Evidence,” Request at 6, but nowhere explains how this issue warrants Commission review. Pilgrim Watch asserts that LBP-11-18 is based “on incomplete and incorrect readings of evidence,” id., but nowhere explains how, nor points to any evidence on which the Board improperly relied. As discussed in the preceding section, Pilgrim Watch’s evidentiary claims are baseless. This unexplained, incomplete argument does not show any clear error by the Board.

could credibly alter the Pilgrim SAMA analysis conclusions on which SAMAs are cost beneficial to implement.”⁴¹ The Board was clear that only if it found in favor of Pilgrim Watch on the threshold issue would it consider whether and the extent to which evacuation times and economic costs should be adjudicated. September 23rd Order at 1, 3. This approach was approved by the Commission, which ruled there was “no ground for upsetting the Board’s decision” to bifurcate the hearing by first determining whether the asserted deficiencies in meteorological modeling credibly could have had a material impact on the Pilgrim SAMA analysis conclusions. CLI-10-28 at 2 n.3. The Commission’s remand instructions and the manner in which the Board carried out those instructions are fully consistent.

On appeal, Pilgrim Watch contends that that the Board improperly bifurcated the hearing. Request at 3. Specifically, Pilgrim Watch argues that the threshold issue should have been whether the meteorological modeling deficiencies could “call into question” the SAMA analysis’ assumptions about the size and location of the affected area and population doses within that area. Request at 8. Such an approach would have contradicted the Commission’s explicit instruction to determine whether Pilgrim Watch’s purported meteorological deficiencies would make a material difference in the SAMA analysis’ cost benefit conclusions. See CLI-10-11 at 27 (“if the Board on remand were to conclude that there is a material deficiency in the meteorological patterns modeling, the economic cost calculations also could warrant re-examination. We therefore remand the economic cost and evacuation time portions of Contention 3 to the Board, but only to the extent that the Board’s merits conclusion on meteorological patterns may materially call into question the relevant economic cost and evacuation timing conclusions in the Pilgrim SAMA analysis”). The Board followed the Commission’s explicit instruction.

⁴¹ Order (Scheduling Telephone Conference) (Sept. 2, 2010) at 1.

Pilgrim Watch also contends that, during a September 15, 2010 pre-hearing teleconference, the Board prohibited Pilgrim Watch from discussing deficiencies regarding costs in addressing the threshold issue, thereby making it impossible for Pilgrim Watch to show that meteorological deficiencies would alter the SAMA cost-benefit analysis. Request at 8-9. Pilgrim Watch's arguments misunderstand the Board's guidance. On the initial appeal, the Commission affirmed the summary disposition of Pilgrim Watch's economic claims because Pilgrim Watch had failed to demonstrate a material dispute for hearing on those economic inputs. Separate and apart from this ruling, the Commission remanded for hearing the precise issue of whether the meteorological issues of concern to Pilgrim Watch could, by themselves, potentially alter the Pilgrim SAMA cost-benefit analysis. Pilgrim Watch conflates its rejected economic inputs claims with the separate issue of whether the SAMA cost benefit conclusions could be altered by meteorological modeling. The Board, however, understood the Commission's direction. During the September 15, 2010 teleconference, the Board clearly stated that it would first consider "the part of the [SAMA] analysis that looks at how the plume would actually work" and "whether accounting only for those meteorological patterns and issues of concern that [Pilgrim Watch] raised relating to the plume model now could credibly alter" the SAMA analysis.⁴² Thus, Pilgrim Watch could not "get into the economic costs, the evacuation inputs on that first issue." Id. (Young). Rather, the first issue is to "see what the effect is of changing the meteorology." Id. at 712 (Abramson). The Board instructed that the parties should "use the cost mechanisms that are currently employed in the MACCS[2] code" to determine whether "just varying the meteorology" would "make other SAMAs cost effective or . . . could make other SAMAs cost effective." Id. (Abramson). These instructions clearly followed the Commission's remand instructions.

⁴² Prehearing Teleconference Transcript (Sept. 15, 2010) ("Tr.") at 707 (Young).

For these same reasons, also without merit is Pilgrim Watch’s related argument (Request at 4, 14-15) that the Board’s decision went “far beyond the ordered scope of phase one of the remand hearing” by relying on testimony from Entergy that Pilgrim Watch’s meteorological claims would not materially alter the SAMA cost-benefit conclusions. Pilgrim Watch’s position flatly contradicts the scope of issues on remand: to determine whether any “significant meteorological modeling deficiency call[s] into question the overall Pilgrim SAMA cost-benefit analysis conclusions.” CLI-10-11 at 27 (emphasis added).

In sum, Pilgrim Watch’s claims on review fail to demonstrate that the Board’s instructions departed from the scope of the remand set by the Commission.⁴³

C. Pilgrim Watch Failed to Timely Raise the Mean Consequence Issue

Pilgrim Watch erroneously claims that the Board majority improperly excluded its concerns about the NRC’s practice of using mean consequence values in SAMA analysis, which results in the averaging of potential consequences. Request at 3-4. To the contrary, the Board majority properly determined that Pilgrim Watch did not timely raise these concerns because they were never part of Contention 3 as pled.

In CLI-10-22, the Commission stated that it would be “appropriate for the Board on remand to consider whether the NRC’s practice [of utilizing mean consequence values] is reasonable for a SAMA analysis, and whether Pilgrim Watch’s concerns are timely raised.” CLI-10-22 at 8 n.34. In a subsequent order, the Board directed that it would consider Pilgrim Watch’s con-

⁴³ Pilgrim Watch alleges that the Board “Substitute[ed] Arithmetic [sic] For Judgment” by “making an economic analysis that was not supposed to occur as part of phase one.” Request at 5. Pilgrim Watch does not further explain how this issue should warrant Commission review of LBP-11-18. Further, as discussed in the preceding section, Pilgrim Watch misunderstands that the Commission proscribed further consideration of Pilgrim Watch’s economic inputs argument (absent a ruling in favor of Pilgrim Watch on the meteorological modeling issues) when remanding Contention 3, not discussion of whether the meteorological issues of concern to Pilgrim Watch could, by themselves, potentially alter the Pilgrim SAMA cost-benefit analysis. Moreover, the portion of the Board’s decision challenged here explicitly states that it is an “additional view of the evidence,” LBP-11-18 at 26-28, not the sole ground for the Board’s decision. Thus, this issue – which Pilgrim Watch never fully explains – does not demonstrate clear error in the Board’s decision or otherwise warrant Commission review of LBP-11-18.

cerns regarding the use of mean consequence values only upon first finding that they were timely raised, and it directed the parties file additional briefs on the timeliness issue.⁴⁴ Subsequently, a majority of the Board requested expert affidavits answering certain related questions.⁴⁵

Having reviewed the pleadings and affidavits, a majority of the Board found that the mean consequence issue was not timely raised by Pilgrim Watch and therefore would not be entertained by the Board during the evidentiary hearing on Contention 3.⁴⁶ In its follow-up Order providing the analysis for its conclusion, the Board majority held that Pilgrim Watch did not raise the mean consequence values issue when challenging certain MACCS2 code input parameters in Contention 3 as originally proffered. March 3rd Order at 12.⁴⁷

The Commission should affirm the Board majority's conclusion that Pilgrim Watch failed to timely raise the mean consequence issue. As the Commission has made clear in this proceeding, "the scope of Contention 3 was dictated by Pilgrim Watch in its original pleading." CLI-10-15 at 7 (emphasis added).⁴⁸ Contention 3 as pled did not raise the mean consequence issue, and instead sought to raise two separate issues: (1) that probabilistic modeling should not be used in the SAMA analysis, and (2) that Entergy may have minimized consequences by using in-

⁴⁴ September 23rd Order at 1-2.

⁴⁵ Order (Questions from Board Majority Regarding the Mechanics of Computing "Mean Consequences" in SAMA Analyses) (Oct. 26, 2010). Judge Young filed a separate statement disagreeing with the Board majority's request for affidavits. Separate Statement of Administrative Judge Ann Marshall Young, in the Matter of *Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), Docket No. 50-293-LR, ASLBP No. 06-848-02-LR (Oct. 26, 2010).

⁴⁶ Order (Ruling on Timeliness of Mean Consequence Issue) (Nov. 23, 2010). The Board majority indicated that it would issue a follow-up Order setting forth its analysis of the timeliness issue in due course. Id. at 2.

⁴⁷ Although Judge Young agreed with the Board majority that Pilgrim Watch did not raise the mean consequence values issue in Contention 3 as originally proffered, she concluded that Pilgrim Watch timely raised the issue in response to Entergy's Motion for summary disposition of Contention 3. Separate Statement of Administrative Judge Ann Marshall Young (Mar. 3, 2011) at 3-4. The Board majority disagreed, finding that, although Pilgrim Watch used the word "mean" in its response, its use indicated a misunderstanding of how Entergy performed the SAMA analysis and that its use did not raise the mean consequence value issue. March 3rd Order at 15.

⁴⁸ For this reason, Judge Young's position – that Pilgrim Watch timely raised the mean consequence issue because it (purportedly) raised the issue in response to Entergy's summary disposition motion – is incorrect.

correct input parameters for the computer consequences model.⁴⁹ Nowhere in the basis for Contention 3 did Pilgrim Watch make any claim that mean consequence values could not be used in the SAMA analysis. Rather, as its statements made clear, Pilgrim Watch asserted that consequences should not be multiplied by probability.⁵⁰ The Board rejected the portion of Contention 3 challenging the use of probabilistic modeling, LBP-06-23, 64 N.R.C. at 340, which Pilgrim Watch did not challenge on appeal.⁵¹ Thus, as admitted, Contention 3 was limited to challenges to the meteorological, evacuation time, and economic inputs. LBP-06-23, 64 N.R.C. at 341.⁵²

Pilgrim Watch devotes four pages of its Request attempting to explain that Contention 3 as pled challenged use of certain input parameters, and that input “parameters” should be understood to include averaging, which should have put Entergy and the NRC Staff on notice of the mean consequences issue, even though the mean consequences is an output of the MACCS2 code. Request at 11-14. The Commission should reject this argument. As the Commission aptly noted earlier in this proceeding, petitioners must set forth their contentions with particularity,

⁴⁹ Request for Hearing and Petition to Intervene by Pilgrim Watch (May 25, 2006) (“PW Pet.”) at 26, 29-31. As pled, Contention 3 stated:

The Environmental Report inadequately accounts for off-site health exposure and economic costs in its SAMA analysis of severe accidents. By using probabilistic modeling and incorrectly inputting certain parameters into the modeling software, Entergy has downplayed the consequences of a severe accident at Pilgrim and this has caused it to draw incorrect conclusions about the costs versus benefits of possible mitigation alternatives.

PW Pet. at 26.

⁵⁰ See, e.g., PW Pet at 28 (“By using probabilistic modeling and incorrect parameters in its SAMA analysis, Entergy arrives at a result that downplays the likely consequences of a severe accident at PNPS, and thus incorrectly discounts possible mitigation alternatives”).

⁵¹ See Pilgrim Watch’s Petition for Review of LBP-06-848 [sic], LBP-07-13, LBP-06-23 and the Interlocutory Decisions in the Pilgrim Watch Nuclear Power Station Proceeding (Nov. 12, 2008).

⁵² The contention as admitted states:

Applicant’s SAMA analysis for the Pilgrim Plant is deficient in that the input data concerning (1) evacuation times, (2) economic consequences, and (3) meteorological patterns are incorrect, resulting in incorrect conclusions about the costs versus benefits of possible mitigation alternatives, such that further analysis is called for.

LBP-06-23, 64 N.R.C. at 341.

and “[i]t ‘should not be necessary to speculate about what a pleading is supposed to mean.’”⁵³

Here, Pilgrim Watch impermissibly seeks to transform a challenge limited to SAMA input parameters into a challenge to the use of mean output consequence values for purposes of SAMA evaluation. See March 3rd Order at 9-12. Pilgrim Watch cannot credibly contend that Contention 3 as pled put Entergy and the NRC Staff on notice of this claim by its input parameter challenge. Accordingly, the Commission should affirm the Board majority.

D. The Board’s Decision Fully Addressed the Scope of Meteorological Issues on Remand

Pilgrim Watch erroneously contends that the Board did not consider important meteorological issues, claiming that the Board limited its ruling to only whether “sea breezes” and “hot spots” could cause additional SAMAs to become cost effective. Request at 6, 16-17. Pilgrim Watch’s mischaracterization of the bases for the Board’s ruling is not a legitimate basis to warrant Commission review of LBP-11-18.⁵⁴

Pilgrim Watch contends that the Board does not account for storms and other severe weather events, re-suspension of contaminants caused by high winds, and radionuclide dispersion caused by precipitation and fog. Request at 16. These claims are unfounded. Among other things, Entergy’s experts testified that the Gaussian plume segment model used in the MACCS2 code uses hourly weather data and therefore accounts for hour-to-hour changes in atmospheric stabilities, wind speed, and precipitation during the radiological plume’s travel. See, e.g., Entergy Test. at A14, A39. Entergy’s experts also testified that the hourly 2001 meteorological data used in the SAMA analysis was representative of other years’ meteorological data based on

⁵³ CLI-10-15 at 4 (quoting Commonwealth Edison Co. (Zion Nuclear Power Station, Units 1 and 2), CLI-99-4, 49 N.R.C. 185, 194 (1999)).

⁵⁴ Notably, the Board “adopt[ed] and incorporate[d] by reference . . . all of the findings of fact proposed by Entergy and the NRC Staff not otherwise addressed” in LBP-11-18 and found “[a]ll other issues, motions, arguments, or proposed findings presented by the parties concerning Contention 3 and not addressed herein . . . without merit or otherwise unnecessary for the decision.” LBP-11-18 at 33 n.141.

comparisons of annual precipitation and wind speed data. Id. at A61-A62. The Board found Entergy's evidence to be uncontroverted, ruling that the single year's worth of meteorological data is both temporally and spatially representative of other years' data. LBP-11-18 at 16. Indeed, Pilgrim Watch provided neither direct nor rebuttal testimony on these issues. Pilgrim Watch's Position Statement merely regurgitates unsupported arguments that Pilgrim Watch had previously made related to storms, precipitation, high-winds, and fog. Nowhere does Pilgrim Watch provide any evidence, analysis or explanation showing that taking account of these issues could alter the Pilgrim SAMA's conclusions. Moreover, because it is uncontroverted that the meteorological data used in Pilgrim's SAMA analysis is representative of other years' data, Pilgrim Watch cannot credibly argue that the Board's analysis overlooked or failed to consider common meteorological events such as storms, high winds, precipitation, and fog. The year's worth of hourly weather data used in the Pilgrim SAMA analysis necessarily took account of these events.

Pilgrim Watch also contends that the Board's decision did not account for variations in terrain and topography. Request at 16-17. To the contrary, Entergy provided extensive, uncontroverted testimony concerning terrain and topography. This testimony included the fact that terrain features such as hills would have a dispersive effect on a radioactive plume, making it less concentrated, and therefore having less impact on persons and property in a SAMA analysis. Entergy Test. at A107. Because the Gaussian plume model does not directly model such terrain features, it overestimates for the Pilgrim SAMA analysis concentrations in the plume at distances several miles downwind of the obstacle, where larger populations are located and therefore pro-

vide the largest contribution to population dose and economic effects. Entergy Test. at A109. Thus, the Pilgrim SAMA is conservative by overestimating consequences in this regard. Id.⁵⁵

The Board credited testimony from Entergy related to the Molenkamp atmospheric model dispersion comparison study which, among other things, found that the ATMOS model in MACCS2 compared favorably to other more complex models which considered terrain among other variables. Entergy Test. at A57. Pilgrim Watch argued before the Board and likewise claims on appeal that the Molenkamp model comparisons were flawed because the study used meteorological data from a Midwest location, which would not be applicable Pilgrim situated on the ocean. Request at 16-17, Egan Statement at 7. However, the Board credited “specific uncontroverted evidence” from Entergy “indicating adequate similarity between the Southern Great Plains and the Pilgrim coastal domain, in terms of wind variations and topography.” LBP-11-18 at 17 (citing Entergy Reb. Test. at A7-A8). Entergy’s expert compared (1) the wind variability data used in the Molenkamp study with that for the Pilgrim SAMA domain and found them comparable, and (2) the terrain in Eastern Massachusetts with that in the Southern Great Plains, and also found them comparable. Entergy Reb. Test at A7-A8. Entergy’s expert also testified that his conclusions were consistent with his extensive experience studying and analyzing weather data for the Southern Great Plains. Id. at A7. Pilgrim Watch provided no evidence or expert testimony to counter Entergy’s evidence and testimony on these issues.

In short, the Board properly credited Entergy’s “specific uncontroverted evidence” and Pilgrim Watch offers no legitimate basis for the Commission to disturb the Board’s rulings on the meteorological issues.

⁵⁵ Entergy’s CALMET Trajectory Analysis, discussed further infra, also considered topography local to Pilgrim and determined that the difference in exposure between an analysis with ATMOS ignoring the terrain and an analysis with CALMET considering terrain was inconsequential. Entergy Test. at A113.

E. The Board's Decision Fully Complies With NEPA

When remanding Contention 3, the Commission provided clear direction on the National Environmental Policy Act's ("NEPA's") requirements. For example, the Commission stated that, for SAMA analysis, NEPA does not require use of the "best scientific methodology."⁵⁶ Rather, NEPA allows agencies "to select their own methodology as long as that methodology is reasonable."⁵⁷ Contrary to this direction, Pilgrim Watch claims that the Board did not comply with NEPA because NEPA required "Entergy to conduct analyses that compare variable trajectory models to straight-line Gaussian plume models, using Pilgrim's site specific data, to see what difference a variable model would make." Request at 20. This position directly contravenes the Commission's explicit direction that "there may be no way to assess, through mathematical or precise model-to-model comparisons, how alternate meteorological models would change the SAMA analysis results" and, thus, under NEPA's rule of reason, "[s]ome assessments may necessarily be qualitative, based simply on expert opinion." CLI-10-22 at 9.

Further, Pilgrim Watch contends that the Board inappropriately relied on "repeated uses of the simplistic and outdated straight-line Gaussian plume model" when ruling in favor of Entergy, in violation of NEPA. Request at 20. This could not be further from the truth. Even a cursory examination of Entergy's testimony and the Board's decision reveals that Entergy confirmed the validity of the MACCS2 code's Gaussian plume segment model by comparisons to other, more complex atmospheric dispersion models.

First, Entergy and the NRC Staff demonstrated that the modeling in MACCS2 is reasonably representative of models that take into account temporal and spatial three-dimensional wind fields generated with data from multiple weather stations. Entergy and the NRC Staff presented

⁵⁶ CLI-10-11 at 37 (citing Hells Canyon Alliance v. U.S. Forest Serv., 227 F.3d 1170, 1185 (9th Cir. 2000)).

⁵⁷ Id. (citing Town of Winthrop v. FAA, 535 F.3d 1, 13 (1st Cir. 2008)).

evidence showing that results calculated by more complex atmospheric transport and dispersion models are generally within a factor of two of results calculated by MACCS2, and that MACCS2 is within plus or minus 10% of a state-of-the art three dimensional model when averaged over a series of radial arcs out to fifty miles.⁵⁸ The NRC Staff's experts concurred that the estimates of the MACCS2 dispersion model were generally within the bounds of the other models and that MACCS2 performed as well as either of the more advanced Gaussian puff model codes evaluated in the study.⁵⁹ The Board credited this expert testimony in concluding that, "even if the sea breeze effect were erroneously computed by the present SAMA analysis, the errors could not have caused the portion of the meteorological computations involving the sea breeze effect to be in error by more than a factor of two," the amount necessary to potentially alter the SAMA analysis' cost-benefit conclusions. LBP-11-18 at 22-23.

Second, Entergy performed a supplemental analysis using CALMET, credited by the Board (LBP-11-18 at 15-16, 30), which is a meteorological model that uses data from multiple weather stations to develop three-dimensional time and spatially variable wind fields.⁶⁰ Entergy used data from multiple weather stations throughout the Pilgrim SAMA region to generate three-dimensional wind fields for the Pilgrim SAMA domain, which were then used to develop and evaluate trajectories for assumed hypothetical releases from the Pilgrim Station for each hour of 2001.⁶¹ Entergy's testimony demonstrated that the Gaussian plume segment ATMOS model used in the Pilgrim SAMA analysis produces results consistent with the three-dimensional

⁵⁸ Entergy Test. at A58; Bixler & Ghosh Test. at A38-A41; and JNT000001 (Comparison of Average Transport and Dispersion Among a Gaussian, a Two-Dimensional, and a Three-Dimensional Model, NUREG/CR-6853 (Oct. 2004) ("Molenkamp Report").

⁵⁹ Ramsdell Test. at A30; Bixler & Ghosh Test. at A38.

⁶⁰ CALMET is the meteorological processor in the Environmental Protection Agency's CALPUFF Langrangian puff dispersion model. Entergy Test. at A55, A94. This is precisely the type of more complex meteorological model Pilgrim Watch has argued should be used.

⁶¹ Entergy Test. at A92-A93. Entergy used certified meteorological data from 26 surface sites and two upper air sites. *Id.* at A95.

CALMET trajectory model (indeed, results that differed only by a few percent⁶² and thus could not affect the overall SAMA results). In light of the fully consistent results between the two models, the uncontroverted evidence shows that short-term differences in observed winds (including sea breezes) have little effect on the annual wind direction frequencies, and the ability to account for short-term time and space variations of meteorology does not significantly enhance the accuracy of the SAMA analysis.⁶³

Pilgrim Watch's witness, Dr. Egan, nowhere addressed the supplemental analyses performed by Entergy. See Egan Statement. Here, the Commission should conclude that Entergy's SAMA analysis and the Board's decision fully comply with NEPA's rule of reason because the record evidence shows that MACCS2 produces results similar to more complex technologies.⁶⁴

IV. CONCLUSION

For the reasons set forth above, the Board should reject Pilgrim Watch's Request.

Respectfully Submitted,

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⁶² Entergy Test. at A104. Compare n.13 supra.

⁶³ Id. at A97, A105.

⁶⁴ Finally, Pilgrim Watch's claim that the Board failed to consider the events of Fukushima, Request at 20-23, is irrelevant to the remanded portion of Contention 3. Issued nearly one year prior to Fukushima, the Commission's remand order obviously could not have required the parties to consider the events of Fukushima in relation to whether or not the meteorology modeling issues could, on their own, credibly alter the Pilgrim SAMA analysis. Nor does Pilgrim Watch attempt to make any showing that Fukushima-related meteorological issues raised in the Request could credibly alter the SAMA analysis. In any event, Pilgrim Watch has already utilized alternate procedures to request that the Board consider Fukushima-related issues. Pilgrim Watch has twice filed requests for hearing with the Board to admit a new contention challenging Entergy's SAMA analysis for Pilgrim license renewal based on the events of Fukushima. Those petitions remain pending before the Board.

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**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

Before the Commission

In the Matter of)	
)	
Entergy Nuclear Generation Company and)	Docket No. 50-293-LR
Entergy Nuclear Operations, Inc.)	ASLBP No. 06-848-02-LR
)	
(Pilgrim Nuclear Power Station))	

CERTIFICATE OF SERVICE

I hereby certify that copies of “Entergy’s Answer Opposing Pilgrim Watch’s Request for Review” dated August 15, 2011, was provided to the Electronic Information Exchange for service on the individuals below, this 15th day of August, 2011.

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