

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Gregory B. Jaczko, Chairman  
Peter B. Lyons  
Dale E. Klein  
Kristine L. Svinicki

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

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CLI-09-11

**MEMORANDUM AND ORDER**  
**(Requesting Additional Briefing)**

This proceeding stems from the application of Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (together, Entergy) to renew the operating license for the Pilgrim Nuclear Power Station for an additional 20 years. The Atomic Safety and Licensing Board issued LBP-08-22, an Initial Decision resolving outstanding issues relating to intervenor Pilgrim Watch's Contention 1, which challenged the applicant's aging management program for buried piping.<sup>1</sup>

Pursuant to 10 C.F.R. § 2.341(b), Pilgrim Watch has filed a petition for Commission review of several Board decisions in this proceeding. Pilgrim Watch seeks review of the Board's Initial Decision in LBP-08-22, and earlier decisions including LBP-07-13, Memorandum and Order (Ruling on Motion to Dismiss Petitioners' Contention 3

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<sup>1</sup> 68 NRC \_\_\_\_ (Oct. 30, 2008)(slip op.). Judge Ann Marshall Young issued a Concurring Opinion on October 31, 2008.

Regarding Severe Accident Mitigation Alternatives);<sup>2</sup> LBP-06-23, Memorandum and Order (Ruling on Standing and Contentions of Petitioners Massachusetts Attorney General and Pilgrim Watch);<sup>3</sup> as well as “the many interlocutory decisions in this proceeding.”<sup>4</sup> Both Entergy and the NRC Staff oppose the petition.<sup>5</sup> For the reasons outlined below, we request additional briefing on one issue and establish a briefing schedule.

Pilgrim Watch’s petition spans several diverse issues. One of Pilgrim Watch’s principal challenges is to LBP-07-13, which dismissed Pilgrim Watch’s contention on severe accident mitigation alternatives (SAMA) – Contention 3. As admitted, the contention challenged the “input data” for evacuation, economic and meteorological information:

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.<sup>6</sup>

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<sup>2</sup> 66 NRC 131 (2007).

<sup>3</sup> 64 NRC 257 (2006).

<sup>4</sup> See *Pilgrim Watch’s Petition for Review of LBP-06-848 [sic], LBP-07-13, LBP-06-23 and the Many Interlocutory Decisions in the Pilgrim Nuclear Power Station Proceeding* (Nov. 12, 2008)(Pilgrim Petition) at 1. Additional Board decisions challenged in Pilgrim Watch’s petition include LBP-07-12, 66 NRC 113 (2007), Memorandum and Order (Ruling on Entergy’s Motion for Summary Disposition of Pilgrim Watch Contention 1, Regarding Adequacy of Aging Management Program for Buried Pipes and Tanks and Potential Need for Monitoring Wells to Supplement Program); Order (Revising Schedule for Evidentiary Hearing and Responding to Pilgrim Watch’s December 14 and 15 Motions)(Dec. 19, 2007)(unpublished); Order (Denying Pilgrim Watch’s Motion for Reconsideration)(Jan. 11, 2008)(unpublished); and Memorandum and Order (Ruling on Pilgrim Watch Motions Regarding Testimony and Proposed Additional Evidence Relating to Pilgrim Watch Contention 1)(June 4, 2008)(unpublished).

<sup>5</sup> See *NRC Staff’s Answer in Opposition to Pilgrim Watch’s Petition for Review of LBP-08-22, LBP-07-13, LBP-06-23 and Interlocutory Decisions* (Nov. 24, 2008); *Entergy’s Answer Opposing Pilgrim Watch’s Petition for Review* (Nov. 24, 2008).

<sup>6</sup> LBP-06-23, 64 NRC at 341.

In LBP-07-13, a Board majority granted Entergy's motion for summary disposition of Contention 3. In support of its Motion, Entergy submitted a report by Washington Safety Management Solutions, and explained that it performed "a series of sensitivity studies to evaluate the effects of changes in the input parameters challenged by Pilgrim Watch on the results of the SAMA analysis."<sup>7</sup> Entergy argued that the sensitivity studies showed that the effect of wide ranging changes to the challenged input parameters is "negligible and immaterial to the results of the SAMA analysis."<sup>8</sup>

After considering the results of Entergy's additional analysis and Pilgrim Watch's response, a Board majority concluded that there no longer remained "any material fact over which there is a genuine issue."<sup>9</sup> Specifically, the Board found that the evidence before it simply was "not susceptible to different interpretations or inferences" that might support a finding "that any particular SAMA could become cost-effective," and therefore there was no utility to proceeding to "a trial on the merits."<sup>10</sup> The Board concluded that Pilgrim Watch failed to contradict Entergy's position that for any of the alleged flaws in Entergy's SAMA analysis to change the estimated benefit of implementation, the change in benefit would have to be nearly 100 per cent, but that the maximum change from correcting the alleged flaws would be on the order of only two per cent.<sup>11</sup> Of note, the majority repeatedly rejected Pilgrim Watch arguments challenging particular modeling methods Entergy used. The majority stressed that in admitting Contention 3, the Board

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<sup>7</sup> LBP-07-13, 66 NRC at 138 (quoting *Entergy's Motion for Summary Disposition of Pilgrim Watch Contention 3* (May 17, 2007) at 10).

<sup>8</sup> *Id.*

<sup>9</sup> *Id.* at 154.

<sup>10</sup> *Id.*

<sup>11</sup> *Id.* at 147.

had explicitly excluded from the contention's scope all challenges to probabilistic modeling.<sup>12</sup>

Judge Young dissented, concluding that the majority had improperly weighed evidence at the summary disposition stage, and further improperly excluded a challenge to Entergy's use of a "straight-line Gaussian plume model" – a model used to estimate the atmospheric dispersion of radionuclides which is "put in" to the MACCS2 (MELCOR Accident Consequence Code System 2) computer code "to produce results about meteorological patterns."<sup>13</sup> The dissent stated that while in admitting Contention 3 the Board had barred any challenge "*on a generic basis [to] the use of probabilistic techniques that evaluate risk,*" it had not excluded "*specific challenges that might bring into question specific aspects of the SAMA analysis,*" such as challenges to the straight-line Gaussian plume model and the "adequacy of the MACCS2 code *as specifically applied with regard to the Pilgrim plant's SAMA analysis.*"<sup>14</sup> The dissent states, for example, that the contention's meteorological arguments "centrally involved" challenges to the use of a straight-line Gaussian plume model to assess meteorological patterns, and that by excluding challenges to the Gaussian model from the contention, the majority rendered the contention "meaningless with regard to meteorological issues."<sup>15</sup>

Both in opposing summary disposition and now in its petition for review, Pilgrim Watch challenges the use of a straight-line Gaussian plume model<sup>16</sup> to estimate the

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<sup>12</sup> See *id.* at 143, 146, 148-51.

<sup>13</sup> See *id.*, 66 NRC at 161; see also *id.*, 66 NRC at 156.

<sup>14</sup> See *id.* at 161-62 (emphasis in original).

<sup>15</sup> *Id.*

<sup>16</sup> As described in the Pilgrim Supplemental Environmental Impact Statement (SEIS), the MACCS2 Gaussian plume model "accounts for the direction of the wind at the beginning of the plume release, but does not account for subsequent changes in wind direction for that particular plume segment." See NUREG-1437, Generic Environmental

atmospheric dispersion of radionuclides at the Pilgrim site. Pilgrim Watch claims that “a variable trajectory plume model – not a straight-line Gaussian plume – is appropriate for Pilgrim’s coastal location and would bring more SAMAs into play.”<sup>17</sup> Pilgrim Watch argues that “no matter how many different straight-line Gaussian inputs the Applicant’s experts may [have] used in their simulations, the output will not reflect what actually will happen at this specific site” because “sensitivity studies do not add useful information if the primary model is flawed.”<sup>18</sup> Pilgrim Watch maintains that it “demonstrated” that use of the “straight line steady state Gaussian plume model leads to a non-conservative geographical distribution of dose within the 50 mile radius of Pilgrim.”<sup>19</sup> Pilgrim Watch also claims that the MACSS2 computer modeling code Entergy used is not “the proper diagnostic tool to assess economic consequences.”<sup>20</sup> Pilgrim Watch argues that the majority improperly weighed evidence and improperly excluded its specific modeling-related challenges, such as its challenge to Entergy’s use of a straight-line Gaussian plume model.

Notably, however, while the Board majority in LBP-07-13 rejected challenges to “the modeling used” in the SAMA analyses, it also concluded that Gaussian plume model results are “generally more conservative than the results obtained by more sophisticated models, . . . and the MACCS2 code was conservatively applied to the Pilgrim SAMA analysis to cause it to produce overall conservative results.”<sup>21</sup>

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Impact Statement for License Renewal of Nuclear Plants, Supplement 29, Final Report (July 2007)(SEIS), Vol. 2, Appendix G at G-19.

<sup>17</sup> See Pilgrim Petition at 15.

<sup>18</sup> *Id.* at 16 (internal quotation and citation omitted).

<sup>19</sup> See *id.* at 15.

<sup>20</sup> *Id.* at 18.

<sup>21</sup> See LBP-07-13, 66 NRC at 151.

Significantly, the majority concluded that there was “uncontroverted testimony indicating that the Applicant’s analyses *maximize* the effects of the radiation carried by the meteorological pattern in each of the hundreds of particular scenarios computed.”<sup>22</sup> In short, the Board majority found that Pilgrim Watch presented no evidence contradicting Entergy’s assertion that correcting the alleged flaws would fall short of making a single additional SAMA cost beneficial.<sup>23</sup>

But the dissent states that it would have inquired further into “the conservatisms in the MACCS2 code and its application,” and that “while it may be that the Gaussian model used in the MACCS2 code and in Entergy’s sensitivity analysis is so conservative that the information provided by Intervenors’ experts is effectively irrelevant, . . . this requires a weighing of the evidence in a hearing.”<sup>24</sup> The judges disagree over whether Pilgrim Watch experts provided *specific* information disputing the conclusions in Entergy’s motion for summary disposition.<sup>25</sup>

We find that sufficient legal and factual questions have been raised to warrant a closer look at the existing record and request the parties to provide additional briefs.

At bottom the question is whether Pilgrim Watch provided support for its claim that there is a genuine *material* dispute – that is, a dispute that could lead to a different conclusion on potential cost-beneficial SAMAs. The Commission has long stressed that NRC adjudicatory hearings are not “EIS editing sessions.”<sup>26</sup> The ultimate concern here

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<sup>22</sup> *Id.* (emphasis added).

<sup>23</sup> *Id.* at 147.

<sup>24</sup> *Id.* at 166 n.51.

<sup>25</sup> *Compare, e.g., id.* at 149-52 *with id.* at 162-63.

<sup>26</sup> *See, e.g., Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-03-17, 58 NRC 419, 431 (2003).

is whether any additional SAMA should have been identified as potentially cost-beneficial, not whether further analysis may refine the details in the SAMA NEPA analysis.

On this issue, the parties' briefs should address the following questions based solely on the existing adjudicatory record:

- (1) In granting summary disposition, was it appropriate for the Board majority to exclude challenges to the use of particular methodologies, such as the use of the straight-line Gaussian plume model to predict the atmospheric dispersion of radionuclides, or the use of the MACCS2 code for determining economic costs?<sup>27</sup>
- (2) Did Pilgrim Watch present a supported, genuine dispute that could materially affect the ultimate conclusions of the SAMA cost-benefit analysis? For example, discuss evidence or testimony presented on (1) whether use of a variable trajectory model could materially affect whether any additional SAMA may be cost-beneficial; (2) the conservatism of the Gaussian plume model and the MACCS2 code (including the economic model) as applied in the cost-benefit analysis; and (3) whether the cost-benefit analysis "subsumes all reasonably possible meteorologic patterns."<sup>28</sup>

Initial briefs are limited to 25 pages, exclusive of title page, table of contents or table of authorities, and shall be filed within 21 calendar days of the date of this order.

Responsive briefs may be filed within 10 calendar days of the initial briefs' filing, and are limited to 10 pages.

We also caution the parties to make their arguments clearly. The Commission should not be expected to "sift unaided through" earlier briefs or other documents filed before the Board "to piece together and discern" a party's argument and the grounds for

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<sup>27</sup> We note that in the ongoing *Indian Point* license renewal proceeding, the Board admitted a contention challenging a particular use of a straight-line Gaussian air dispersion model in the applicant's SAMA analysis. See *Entergy Nuclear Operations, Inc.* (Indian Point Nuclear Generating Station, Units 2 and 3), LBP-08-13, 68 NRC \_\_\_ (slip op. July 30, 2008) at 75-79.

<sup>28</sup> See LBP-07-13, 66 NRC at 151.

its claims.<sup>29</sup> Submissions shall be limited to affidavits and exhibits already in the record. References to such affidavits and other exhibits should include page citations.

In addition to challenging the dismissal of Contention 3, Pilgrim Watch raises several other issues in its Petition for Review. We will resolve these other matters – including determining whether any issue(s) warrants review – based upon the briefs and record now before us.

IT IS SO ORDERED.

For the Commission

**[NRC SEAL]**

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Annette L. Vietti-Cook  
Secretary of the Commission

Dated at Rockville, Maryland  
this 4<sup>th</sup> day of June, 2009.

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<sup>29</sup> See *Hydro Resources, Inc.* (P.O. Box 15910, Rio Rancho, NM 87174), CLI-01-4, 53 NRC 31, 46 (2001).