UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
Entergy Nuclear Generation Co.	)	Docket No. 50-293-LR
And Entergy Nuclear Operations, Inc.	)	
(Pilgrim Nuclear Power Station)	)	December 8, 2011

COMMONWEALTH OF MASSACHUSETTS' NOTICE OF APPEAL OF LBP-11-35

Pursuant to 10 C.F.R. §§ 2.311(a) and (c), the Commonwealth of Massachusetts files, together with an attached supporting Brief, this Notice of Appeal of the Atomic Safety and Licensing Board's November 28, 2011, Memorandum and Order, which denied admission of the Commonwealth's contention, hearing request, associated waiver petition, and alternative request for rulemaking, on new and significant information arising from the accident at Fukushima and the significance of that information for the Pilgrim relicensing proceeding.

Respectfully submitted,

COMMONWEALTH OF MASSACHUSETTS

By its attorneys,

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COMMONWEALTH OF MASSACHUSETTS' BRIEF IN SUPPORT OF APPEAL FROM LBP-11-35

COMMONWEALTH OF MASSACHUSETTS
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COMMONWEALTH OF MASSACHUSETTS BRIEF ON APPEAL OF LBP-11-35, DENYING ADMISSION OF THE COMMONWEALTH'S CONTENTION, HEARING REQUEST, ASSOCIATED WAIVER PETITION, AND ALTERNATIVE REQUEST FOR RULEMAKING, ON NEW AND SIGNIFICANT INFORMATION ARISING FROM THE ACCIDENT AT FUKUSHIMA AND THE SIGNIFICANCE OF THAT INFORMATION FOR THE PILGRIM RELICENSING PROCEEDING

I. Introduction

The Commonwealth of Massachusetts (Commonwealth), pursuant to 10 C.F.R. §§ 2.311 (a) and (c), hereby appeals the decision of the Pilgrim Atomic Safety and Licensing Board[1] (ASLB) which denied admission of the Commonwealth's contention, hearing request, associated waiver petition, and alternative request for rulemaking, involving new and significant information arising from the accident at the Fukushima Daiichi Nuclear Power Plants, Units 1 through 4, and the significance of that information for the Pilgrim Nuclear Power Plant – a plant of similar design to those that failed at Fukushima.

The Commonwealth's expert supported contention demonstrates that the environmental impacts of relicensing the Pilgrim plant are significantly greater than set forth in Entergy's application for relicensing; that in light of the real world events at Fukushima, certain material inputs or assumptions in Entergy's Severe Accident

[1] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), LBP-11-35, 74 N.R.C. __, (November 28, 2011)("LBP-11-35").

Mitigation Alternatives (SAMA) analysis are flawed; that Entergy has significantly understated the risk of continued plant operation; and that Entergy has failed to take account of additional SAMA analysis which could be identified as potentially cost-beneficial. In support of its contention, the Commonwealth also offered the Report of the NRC's own Task Force, which concluded, in part, that safety at U.S. nuclear plants should be improved and additional mitigation measures implemented to reduce risk.

While a majority of the ASLB panel rejected the Commonwealth's contention, the ASLB Majority decision, while lengthy, is most noteworthy for what it fails to address. The Majority Decision largely ignores the Commonwealth's core legal position in this case: that the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321, *et seq.*, requires the NRC to consider the new and significant information arising from the accident at Fukushima, and its relevance in determining the impacts of relicensing the Pilgrim plant, before it may lawfully grant a license extension for an additional twenty years.[2]

The ASLB Majority similarly ignored the new and significant information identified by the NRC's own Task Force, which found that safety at U.S. nuclear plants should be improved, and additional mitigation measures ordered, in light of the lessons learned from Fukushima. Thus the Task Force's findings that additional mitigation is warranted for the NRC to meet its obligations to provide adequate safety at U.S. nuclear plants also supports the need for additional mitigation at Pilgrim under NEPA, which in

[2] While finding that a decision on the Commonwealth's contention is premature, Judge Young, in her concurrence, supports the Commonwealth on this key issue. LBP-11-35 at 76, fn. 13 *infra*.

turn should require Entergy to redo its SAMA analysis for the Pilgrim plant. Yet the ASLB Majority also disregarded this issue.

The ASLB Majority then erred by rejecting the Commonwealth's expert opinion submitted in support of its contention, by Dr. Gordon Thompson, who concluded that Entergy's SAMA analysis is flawed and should be revised. Specifically, Dr. Thompson found, in part, that the direct experience from Fukushima, and the new light it casts on prior core melt accidents at Three Mile Island and Chernobyl, indicate that Entergy's SAMA analysis has underestimated Core Damage Frequency by a factor of ten. Thus mitigation measures previously rejected as not cost effective would, in some instances, become so if the SAMA analysis is revised.

However, the ASLB Majority erroneously concluded that direct experience has no place in providing a "reality check" for Entergy's SAMA analysis. The ASLB Majority thus disagrees with the NRC's own Task Force, which utilized the real world events at Fukushima as a primary basis to recommend additional mitigation measures to reduce risk and improve safety at U.S. nuclear plants. Similarly, the ASLB Majority turns western scientific method on its head by concluding that real world experience is irrelevant to testing the merits of Entergy's theoretical Probabilistic Risk Assessment (PRA) model – a model which predicted a Fukushima-type accident likely would not happen.

Finally, the ASLB Majority committed legal error and abused its discretion by interpreting the NRC's late filed contention standards in a manner which imposes an undue burden on the Commonwealth at the contention admission stage of this proceeding -- and one that unlawfully would excuse the NRC from meeting its

independent legal obligation to comply with NEPA to determine the impacts of relicensing the Pilgrim Nuclear Power Plant before granting a license extension for an additional twenty years.

Therefore, 1) the Pilgrim ASLB violated NEPA and the Administrative Procedure Act (APA), 5 U.S.C. §§ 551 *et seq.*, and acted arbitrarily, by failing, prior to relicensing, to ensure that the NRC will take a hard look at new and significant information about the environmental impacts of granting a license extension for the Pilgrim Nuclear Power Plant; and 2) the Pilgrim ASLB violated the Atomic Energy Act (AEA), 42 U.S.C. §§ 2011 *et seq.*, by failing to grant the Commonwealth a hearing on these material relicensing issues. The Commonwealth respectfully requests the Commission to reverse and vacate that Decision.

II. Statement of Facts

In March 2011, an earthquake and tsunami initiated a severe accident involving four Nuclear Power Plants (NPPs) on the Fukushima Daiichi (Number 1) site in Japan. That accident is ongoing. Nevertheless, information has become available, and continues to emerge, which is new and significant in the context of the Pilgrim NPP license renewal proceeding.

A. Commonwealth Initial Filings on Fukushima

On May 2, 2011, the Commonwealth filed a request to stay the Pilgrim relicensing proceeding to allow time to evaluate the lessons learned from Fukushima and their relevance for the Pilgrim plant.[3] On June 2, 2011, the Commonwealth filed a

[3] Commonwealth of Massachusetts Response to Commission Order Regarding Lessons Learned from the Fukushima Daiichi Nuclear Power Station Accident, Joinder in Petition

contention supported by its expert, Dr. Gordon Thompson, and related filings, based upon the lessons learned from Fukushima to date.[4,5]

In his report, Dr. Thompson identified six areas in which information that was then available regarding the Fukushima accident supported either conclusive (established) or provisional (likely) findings that challenge the adequacy of the existing SAMA analysis for the Pilgrim plant, including the analysis related to spent fuel pool risks. Of primary relevance, Dr. Thompson concluded in his June 1, 2011 Report that Entergy has under-estimated the baseline Core Damage Frequency (CDF) by an order of magnitude (a factor of ten).[6] Moreover, as he explained, the benefit of a SAMA will scale (approximately) linearly with baseline CDF. *Id.*, at 16. Thus, the Commonwealth more than met the threshold articulated by NRC Staff which would require Entergy to

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to Suspend the License Renewal Proceeding for the Pilgrim Nuclear Power Plant, and Request for Additional Relief (May 2, 2011).

[4] Commonwealth of Massachusetts' Conditional Motion to Suspend Pilgrim Nuclear Power Plant License Renewal Proceeding Pending Resolution of Petition for Rulemaking to Rescind Spent Fuel Pool Exclusion Regulations (June 2, 2011); Contention Regarding New and Significant Information Revealed by the Fukushima Radiological Accident (June 2, 2011); Motion to Admit Contention and, if Necessary, to Re-Open Record Regarding New and Significant Information Revealed by Fukushima Accident (June 2, 2011); Petition for Waiver of 10 C.F.R. Part 51 Subpart A, Appendix B, or, in the Alternative, Petition for Rulemaking to Rescind Regulations Excluding Consideration of Spent Fuel Storage Impacts from License Renewal Environmental Review (June 2, 2011)("Waiver Petition"); Declaration of Dr. Gordon R. Thompson in Support of Commonwealth of Massachusetts' Contention and Related Petitions and Motions (June 1, 2011); Gordon R. Thompson, Institute for Resource and Security Studies, New and Significant Information from the Fukushima Daiichi Accident in the Context of Future Operation of the Pilgrim Nuclear Power Plant (June 2011)("Thompson 2011 Report").

[5] The Commission denied the Commonwealth's May 2nd request for a stay of proceedings but specifically reserved for decision by the Pilgrim ASLB, in the first instance, consideration of the Commonwealth's Contention and related filings. *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-11-05, 74 N.R.C. __, (September 9, 2011)(slip op. at 36, fn 122) ("These new filings will be addressed separately, in the *Pilgrim* proceeding.").

[6] *See* Thompson 2011 Report, pp. 16-17.

revise its SAMA analysis, since the Commonwealth's expert found a ten-fold increase of benefits.[7] Thus, for example, a factor of ten encompasses the SAMA analysis for filtered containment venting, given that Entergy's experts found that the costs outweighed the benefits by a factor of three. *See* Declaration of Joseph R. Lynch, Lori Ann Potts, and Dr. Kevin R. O'Kula in Support of Entergy Answer Opposing Commonwealth Claims of New and Significant Information Based on Fukushima, at 53, ¶ 98 (June 27, 2011).[8]

Dr. Thompson further summarized his conclusions on the impacts of Fukushima on the Pilgrim relicensing as follows:

- Based on cumulative direct experience of NPP accidents including the Fukushima accident, the Pilgrim licensee under-estimates reactor core damage frequency by an order of magnitude. Thus, the licensee's SAMA analysis for Pilgrim should be re-done with a baseline CDF that is increased by an order of magnitude. In light of experience at Fukushima, the re-done SAMA analysis should encompass, among other SAMA options, measures to accommodate: (i) structural damage; and (ii) station blackout, loss of service water, and/or loss of fresh water supply, occurring for multiple days. Also, in view of the high risk of a radioactive release at Pilgrim, any accident-mitigation measure or SAMA that is credited for the future licensed operation of the Pilgrim NPP should be incorporated in the plant's design basis. That implication – designated here as General Implication #1 – holds across all six issues addressed in this report. [Conclusive Finding].

- Based on operators' experience during the Fukushima accident and a review of the extensive damage mitigation guidelines – which were prepared by NEI – that were publicly disclosed pursuant to the Fukushima accident, the operators' capability to mitigate an accident at the Pilgrim NPP can be severely degraded in the accident environment. Moreover, NEI's newly-disclosed EDMGs [__]are clearly inadequate to address the range of core-damage and spent-fuel-damage events that could occur at Pilgrim. Finally, there is a substantial conditional

[7] The NRC Staff concluded that it would require at least a doubling of benefits before the next SAMA on the candidate list could become potentially cost-beneficial and that therefore at least a doubling of benefits is required to change the results of Entergy's SAMA analysis. NRC Staff's Response to Commonwealth of Massachusetts' Motion to Supplement Bases to Proposed Contention to Address NRC Task Force Report on Lessons Learned from Fukushima (September 6, 2011)(Staff Opposition) at 11.

[8] Thus, based upon the Commonwealth's expert-supported contention, the benefit of filtered venting will rise from $872,000 to $8,720,000 (approximately), which is substantially larger than the cost of $3,000,000.

probability of a spent-fuel-pool fire during a reactor accident at Pilgrim. Each of these findings supports General Implication #1. [Conclusive Finding].

- Based on operators' experience during the Fukushima accident and a review of the EDMGs that were publicly disclosed pursuant to the Fukushima accident, NRC's excessive secrecy degrades the licensee's capability to mitigate an accident at the Pilgrim NPP. This finding supports General Implication #1. Also, this finding shows that: (i) NRC secrecy regarding the general characteristics of accident mitigation measures and the phenomena associated with spent-fuel-pool fires should cease; and (ii) NRC should sponsor open research on spent-fuel-pool fires and their mitigation. [Conclusive Finding].

- Based on the occurrence of hydrogen explosions at Fukushima NPPs and on the reported experience of Fukushima operators with hydrogen control systems, hydrogen explosions similar to those experienced at Fukushima could occur at the Pilgrim NPP. This finding shows that: (i) containment venting and other hydrogen control systems at Pilgrim should be substantially upgraded, and should use passive mechanisms; and (ii) all hydrogen control measures at Pilgrim should be incorporated in the plant's design basis. The latter implication is equivalent to General Implication #1 in regard to hydrogen control. [Provisional Finding].

- Based on direct experience at Fukushima regarding damage to spent-fuel pools and their support systems (for cooling, makeup, etc.), there is a substantial, conditional probability of a spent-fuel-pool fire during a reactor accident at Pilgrim. The same finding, reached through a different approach, is set forth in conclusion C5.[9]. This doubly-supported finding shows that measures to prevent a pool fire should be considered in a re-done SAMA analysis. In light of conclusion C4,[10] above, and conclusion C12 (and supporting information) in the Thompson 2006 report, SAMA methodology shows that the Pilgrim pool should be re-equipped with low-density, open-frame racks. Separate from SAMA analysis, prudent engineering principles also indicate that the Pilgrim pool should be re-equipped with low-density, open-frame racks. Finally, the finding set forth here supports General Implication #1. [Provisional Finding].

- Based on the reported release of radioactive material to the atmosphere from NPPs at Fukushima, filtered venting of the Pilgrim reactor containment could substantially reduce the atmospheric release of radioactive material from an accident at the Pilgrim NPP. This finding shows that filtered venting of the containment should be considered in a re-done SAMA analysis for Pilgrim. Separate from SAMA analysis, prudent engineering principles indicate that the Pilgrim plant should be equipped with a filtered venting system that uses passive

[9] *See* Thompson 2011 Report at 30.
[10] *See id.*, at 29.

mechanisms. Also, any measures related to filtered venting should be consistent with General Implication #1. [Provisional Finding].[11]

The NRC Staff and Entergy opposed the Commonwealth's contention, primarily claiming that the Commonwealth's information on the lessons learned from Fukushima was neither new nor significant. Indeed, the Staff claimed that "…the SAMA analysis has no direct safety or environmental significance."[12]

B. NRC Task Force Report on Fukushima

The Commission established the NRC Near-Term Task Force on Fukushima to provide:

> [a] systematic and methodical review of U.S. Nuclear Regulatory Commission processes and regulations to determine whether the agency should make additional improvements to its regulatory system and to make recommendations to the Commission for its policy direction, in light of the accident at the Fukushima Dai-ichi Nuclear Power Plant.[13]

On July 12, 2011, the Task Force issued its Report on the lessons learned to date from Fukushima,[14] which included a number of significant recommendations to change NRC policies and practices which should be considered in the Pilgrim relicensing proceeding, including changes to the regulatory system on which the NRC relies to make the safety findings that the AEA requires for licensing of reactors and to raise the level of safety that is minimally required for the protection of public health and safety:

> In response to the Fukushima accident and the insights it brings to light, the Task Force is recommending actions, some general, some specific that

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[11] Thompson 2011 Report, Section VI.
[12] *See, e.g.,* NRC Staff's Response to Commonwealth of Massachusetts' Motion to Admit Contention, and, if Necessary, to Re-open Record Regarding New and Significant Information Revealed by Fukushima Accident (June 27, 2011)(ADAMS No. ML11178A380), at 12.
[13] U.S. Nuclear Regulatory Commission Task Force, Near-Term Review of Insights from the Fukushima Dai-ichi Accident: Recommendations for Enhancing Reactor Safety in the 21st Century (July 12, 2011)(Adams No. ML111861807)("Task Force Report"), at vii.
[14] *Id.*

> it believes would be a reasonable, well-formulated set of actions *to increase the level of safety associated with adequate protection of the public health and safety.*[15]

In particular, the Task Force found that "the NRC's safety approach is incomplete without a strong program for dealing with the unexpected, including severe accidents." *Id.* at 20. The Task Force also recognized that the great majority of the NRC's current regulations do not impose mandatory safety requirements on severe accidents, and severe accident measures are adopted only on a "voluntary" basis or through a "patchwork" of requirements. *Id.*

The Task Force concluded:

> While the Commission has been partially responsive to recommendations calling for requirements to address beyond-design-basis accidents, the NRC has not made fundamental changes to the regulatory approach for beyond-design-basis events and severe accidents for operating reactors. *Id.* at 17.

Therefore the Task Force recommended that the NRC incorporate some potential severe accidents into the "design basis," subject them to mandatory safety regulations, and suggested that some severe accident mitigation measures should be adopted into the design basis, i.e., the set of regulations adopted without regard to their cost which establish the minimum level of adequate protection required for all nuclear power plants. *Id.* at 18 and 20. In support of and in parallel with its recommendations to upgrade the design basis, the Task Force also proposed a series of specific safety investigations, design changes, equipment upgrades, and improvements to emergency planning and operating procedures. *See, e.g.,* Task Force Report at 69-70; 73-75.

[15] *Id.* at 18 (emphasis added).

In response to the Task Force Report, the Commission ordered the NRC Staff to "implement without delay" certain of the Task Force's recommendations.[16],[17]

C. Commonwealth Filings Re: NRC Task Force Report

On August 11, 2011, the Commonwealth filed a motion to supplement the bases for its contention previously filed with the Pilgrim ASLB on June 2, 2011.[18] The Commonwealth's supplemental bases provided additional new and significant information in support of its contention which was not available at the time of the Commonwealth's initial contention filing: 1) the July 12, 2011 report of the Near Term Task Force established by the Nuclear Regulatory Commission (NRC) to evaluate the Fukushima accident and determine, in light of those lessons, whether the NRC's policies and regulatory practices should be changed for U.S. nuclear power plants; and 2) the supplemental declaration of Dr. Gordon Thompson,[19] in which Dr. Thompson comments on the Task Force Report. Specifically, as noted in Dr. Thompson's Supplemental Declaration, the Task Force recommendations support and are consistent with those

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[16] *See* LBP-11-35, slip op. at 73, *citing* 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).

[17] In its Report, the Task Force found that no "imminent risk" was posed by operation or licensing such that the U.S. plants should be shut down immediately, *id.*, at 18, and that U.S. reactors meet the statutory standard for security, *i.e.,* they are "not inimical to the common defense and security." *Id.* Notably, however, the Task Force did not report a conclusion that the continued licensing of reactors such as the Pilgrim Nuclear Power Plant would satisfy NEPA, without first addressing the lessons learned from the accident at Fukushima.

[18] Commonwealth of Massachusetts Motion to Supplement Bases to Commonwealth Contention to Address NRC Task Force Report on Lessons Learned from the Radiological Accident at Fukushima (August 11, 2011).

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

opinions previously provided by Dr. Thompson in support of the Commonwealth's June 2, 2011 contention:

1. Replace the "patchwork" of NRC requirements and voluntary initiatives with a "logical, systematic, and coherent regulatory framework" for design-basis and beyond-design-basis requirements. Thompson Supplemental Declaration ¶ II-3;

2. Rely upon prudent engineering principles, informed by cumulative direct experience on nuclear power plant accidents and accident precursors, as part of risk assessment and SAMA analysis. *Id.* at ¶¶ III-2 and III-3;

3. Upgrade water instrumentation and water makeup capability, and consider other mitigation measures, to reduce substantial conditional probability of a spent-fuel-pool fire. *Id.* at ¶¶ III-4 and III-5; ¶¶ III-10 and III-11;

4. Implement Task Force recommendations in a more transparent manner, which would reduce excessive secrecy that may degrade licensees' capability to mitigate an accident. *Id.* at ¶¶ III-6 and III-7;

5. Install hardened venting at the containment and other mitigation measures to reduce risk of hydrogen explosion. *Id.* at ¶¶ III-8 and III-9;

6. Install filtered venting for reactor containment to substantially reduce the amount of radioactive material released to the atmosphere during an accident. *Id.* at ¶¶ III-12 and III-13.

Based upon his earlier opinion, and as further supported by the Task Force Report, Dr. Thompson concluded that the SAMA analysis for the Pilgrim plant, and the Pilgrim-specific supplement to the GEIS for license renewal, should be redone. *Id.* at Section IV.

On September 6, 2011, the NRC Staff[20] and Entergy[21] filed oppositions to the Commonwealth's Motion. The Staff and Entergy claimed that the Commonwealth's Motion should be denied because the NRC's Task Force Report – the first report by the NRC on the "new information" from the lessons learned from Fukushima – does not present new and significant information for the Pilgrim relicensing proceeding.[22] The Staff and Entergy also asserted that Task Force recommendations to improve safety at U.S. nuclear plants, by enhancing mitigation measures, are not relevant to the SAMA analysis for the Pilgrim plant.[23]

D. ASLB Decision

On November 28, 2011, a Majority of the Pilgrim ASLB denied admission of the Commonwealth's contention, holding that the Commonwealth's contention did not present new and significant information and had not satisfied any of the NRC's nineteen standards for admissibility, late filing, and reopening a closed record (collectively "late-filed" contention standards). In so doing, the Majority evaluated and rejected the merits of the Commonwealth's expert opinion – at the contention admission stage of this proceeding – on the need to revise SAMAs for the Pilgrim plant and disregarded the NRC's own Task Force on the need to improve safety at U.S. nuclear plants based upon

[20] NRC Staff's Response to Commonwealth of Massachusetts' Motion to Supplement Bases to Proposed Contention to Address NRC Task Force Report on Lessons Learned from Fukushima (September 6, 2011)(Staff Opposition).
[21] Entergy's Answer Opposing Commonwealth Motion to Supplement Bases to Commonwealth Contention to Address NRC Task Force Report on Lessons Learned from Fukushima (September 6, 2011) (Entergy Opposition).
[22] *Cf.* Task Force Report at 18 ("As new information and new analytical techniques are developed, safety standards need to be reviewed, evaluated, and changed, as necessary… [T]he time has come for such change.").
[23] *Cf., id.,* at 69 (Enhancing Mitigation).

the lessons learned from Fukushima.[24] Therefore, the ASLB Majority concluded that no hearing – either site specific or through a generic rulemaking – was warranted. The ASLB Majority also concluded that the Commonwealth did not meet the standard for a waiver because the issues it raised regarding spent fuel pool risks were generic rather than site specific.[25]

Judge Young concurred in the Majority Decision result only, finding, based upon CLI-11-05, that the Commission determination that it would be "premature" to reach issues arising from Fukushima precluded review of the Commonwealth's contention at this time.[26] However, she expressly did not adopt the reasoning of the Majority Decision. Instead, she concluded that "information from Fukushima is clearly 'new' information" and that the Commonwealth had shown "at least some likelihood" that the information on Fukushima could lead to significantly different analysis of environmental consequences of renewing the Pilgrim operating License. *Id.* at 74; 76. Judge Young concluded that, while the Commonwealth's contention may not yet be ripe, "…it would appear that Fukushima-related issues must be addressed in some manner in this proceeding prior to its conclusion and a final determination on the license renewal request…"[27]

Pursuant to 10 C.F.R. § 2.311(b), the Commonwealth filed a timely notice of appeal.

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[24] *See, e.g.,* LBP-11-35 at 58 (report and declarations of the Commonwealth's expert amount to only a "bare conclusory statement" and fail to show that other SAMAs "would have been considered"), 63 fn 230 (the Task Force recommendations are not relevant to the determination of new and significant information until "scientific investigation" of the Report's "suggestion" regarding SAMAs), and 69 ("there is presently absolutely no information presented from the Fukushima accidents that has been indicated to have any impact on the Pilgrim Plant or its environmental impact").
[25] *Id.*, at 64, 70 fn. 214.
[26] *Id.*, at 72.
[27] *Id.*, at 76 fn. 13.

III. Argument

A. The ASLB Majority ignored the NRC's independent legal obligation to take a hard look at the new and significant information arising from the lessons learned at Fukushima, and their relevance for the Pilgrim Plant, before granting a license extension for an additional twenty years.

Under NEPA, the NRC has a nondiscretionary duty to consider new and significant information if there are "significant new circumstances or information relevant to the environmental concerns and bearing on the proposed action or its impacts." *Marsh v. Oregon Natural Resources Council,* 490 U.S. 360, 372 (1989); 10 C.F.R. § 51.92(a)(2). The NRC must consider new and potentially significant information "regardless of its eventual assessment of the significance of this information." *Marsh*, 490 U.S. at 385. An agency's obligations under NEPA are "not discretionary, but are specifically mandated by Congress, and are to be reflected in the procedural process by which agencies render decisions." *Silva v. Romney,* 473 F.2d 287, 292 (1st Cir. 1973). And NEPA requires federal agencies to examine the environmental consequences of their actions *before* taking those actions, in order 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." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

Faced with this controlling legal precedent, the Pilgrim ASLB Majority chose largely to ignore it.[28] The ASLB Majority never addresses the Commonwealth's foundational argument that it is the NRC – not the Commonwealth – which is legally obligated to comply with NEPA, and take a hard look at the lessons learned from

[28] *Cf.*, LBP-11-35 at 61 fn. 227

Fukushima, before granting a license extension for the Pilgrim plant.[29] Indeed the ASLB Majority rarely mentions NEPA at all in its decision and never acknowledges any independent responsibility by the agency for understanding the impacts of Fukushima on the Pilgrim relicensing before making that decision.

By contrast, Judge Young, in her concurrence, and while expressing some uncertainty over the lessons learned from Fukushima, nevertheless suggests that the NRC cannot lawfully relicense Pilgrim without first understanding the import of the lessons learned from Fukushima and their significance for the Pilgrim plant:

> Indeed, it would appear that Fukushima-related issues must be addressed in some manner in this proceeding prior to its conclusion and a final determination on the license renewal request, given (1) the reasonable likelihood that relevant Fukushima-related information *could* in this proceeding lead to significantly different analyses and/or conclusions in the EIS and SAMA analysis; and (2) NEPA's "'dual purpose' [of] ensur[ing] that federal officials *fully* take into account the environmental consequences of a federal action *before* reaching major decisions, and [ ] inform[ing] the public, Congress, and other agencies of those consequences."
> LBP-11-35 at 76, fn. 13 (citations omitted).

Judge Young's view is consistent with that expressed by the Supreme Court in *Marsh*, where the Court recognized it would be incongruous with NEPA's "action-forcing" purpose to allow an agency to put on "blinders to adverse environmental effects," just because the EIS has been completed. *Marsh*, 490 U.S. at 371. Accordingly, the NRC must supplement the Pilgrim EIS where, as here, there is new information showing that the remaining federal action may affect the quality of the human environment "in a significant manner or to a significant extent not already considered." *Id.*, at 374.

[29] Waiver Petition, 20-26.

Moreover, having met its initial burden to present new and significant information, the Commonwealth is not obligated to perform a complete and new SAMA analysis or conduct a comprehensive review of potential mitigation measures before the NRC is obligated to take a hard look at the lessons learned from Fukushima: "[it] is the agency, not an environmental plaintiff, that has a 'continuing duty to gather and evaluate new information relevant to the environmental impacts of its actions,' even after release of an [EA or EIS]." *Friends of the Clearwater v. Dombeck*, 222 F.3d 552, 559 (9th Cir. 2000) (*quoting Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1023 (9th Cir. 1980)). As the First Circuit remarked in *Dubois v. U.S. Dept. of Agric.*, 102 F.3d 1273, 1291 (1st Cir. 1996)(citations omitted), discussing the public's role under NEPA:

> Specifics are not required…[T]he purpose of public participation regulations is simply to provide notice to the agency, not to present technical or precise scientific or legal challenges to specific provisions of the document in question…Moreover, NEPA requires the agency to try on its own to develop alternatives that will mitigate the adverse environmental consequences of a proposed project.

Here, the Commonwealth has more than met its burden to provide new and significant information to the NRC on the lessons learned from Fukushima, and has established an expert-supported dispute that the Pilgrim SAMA analysis and Supplement to the GEIS are flawed and should be redone. Section III.B, i*nfra*. Thus it is now the NRC's duty – "regardless of its eventual assessment of the significance of this information," *Marsh*, 490 U.S. at 385 – to take a hard look at this information in a manner that rationally connects the facts found to the choices made. *Burlington Truck Lines v. United States*, 371 U.S. 156, 168 (1962)(the agency must consider relevant factors and articulate "[a] rational connection between the facts found and the choice made").

Therefore, as required by NEPA, the Commission should first undertake its independent obligation to take a hard look at the Commonwealth's new and significant information and the lessons learned from Fukushima, as relevant to the Pilgrim plant, before granting a license extension for an additional twenty years.

B. The Commonwealth has presented new and significant information on the lessons learned from Fukushima which the NRC must consider before granting a license extension for the Pilgrim plant.

Having largely ignored the Commonwealth's foundational legal argument, the Pilgrim ASLB Majority also ignored the NRC's own Task Force and the Commonwealth's expert supported new and significant information, holding that the Commonwealth's contention did not satisfy any of the NRC's nineteen late filed contention standards. By contrast, Judge Young, in her concurring opinion, applied the correct legal standard for new and significant information, consistent with *Marsh*, and concluded that the Commonwealth's contention met that standard.[30] The Commonwealth addresses these contrasting opinions as follows:

1. Task Force Report

The ASLB Majority's finding of no significance is plainly erroneous because their decision fails to address a material part of the Commonwealth's new and significant information: the Report by the NRC's own Task Force which found, based upon lessons learned from Fukushima, that the NRC should "increase the level of safety associated with adequate protection of the public health and safety." Task Force Report at 18

[30] *See* LBP-11-35 at 72. The Commonwealth, however, respectfully disagrees with Judge Young that the Commonwealth's contention is "premature" for consideration in a site specific hearing or generic rulemaking.

(safety standards need to be reviewed and changed); *id.*, at 21 (strengthen mitigation of accidents as severe as Fukushima).

As the Commonwealth previously explained, the Task Force's findings on the need to enhance AEA safety mitigation also supports the need to revise and upgrade the mitigation associated with minimizing the environmental impacts of relicensing under NEPA.[31] NEPA requires the preparation of an environmental impact statement when a major federal action may have a significant effect on the human environment.[32] The degree to which a project may affect public health or safety is a major consideration under the statute. *See* 40 C.F.R. §1508.27.

Consistent with these legal requirements, the Commonwealth presented NEPA claims on the inadequacy of the Pilgrim SAMA analysis, the need to consider additional mitigation measures, and the failure of the Pilgrim SAMA analysis and Supplement 29 to the Generic Environmental Impact Statement to comply with NEPA because they do not address the new and significant information arising from Fukushima. The Commonwealth's NEPA concerns are consistent with, overlap, and in part rely upon the same impacts of concern for the Pilgrim plant as do AEA safety concerns identified by the NRC's own Task Force and addressed in NRC regulations. As Judge Young elsewhere noted:

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[31] Commonwealth of Massachusetts Reply to NRC Staff and Entergy Opposition to Commonwealth Motion to Supplement Bases to Contention on NRC Task Force Report on Lessons Learned from Fukushima (September 13, 2011).

[32] The term "human environment" "shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment." 40 C.F.R. §1508.14. Moreover, the "effects" and "impacts" are synonymous and include the ecological effects (such as effects on natural resources and on the components, structures, and functioning of affected ecosystems) as well as the aesthetic, historic, cultural, economic, social, and health impacts of a proposed action. 40 C.F.R. §1508.8.

> The accident at Fukushima happened, and it happened at reactors of the same model as the Pilgrim reactor. In this light, not to consider information concerning the *severe accident* at the Fukushima plant as 'new' information that is relevant to the Pilgrim SAMA analysis – the *severe accident* mitigation alternatives analysis – including those aspects of it that concern containment failure, offsite consequences, and the functioning and use of the DTV, would seem to be short-sighted, if not indeed absurd.[33]

The link between AEA safety findings and NEPA compliance also is well established in the law. *See Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719, 730 (3rd Cir. 1989) (noting the overlap in AEA and NEPA considerations and indicating that both statutes must be satisfied to support licensing). Similarly, the environmental considerations under NEPA also may be applied to health and safety considerations under the AEA. *Id*., (*citing Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291, 1299 (D.C. Cir. 1975)).

Thus the ASLB Majority's finding of no significance is contrary to the NRC's own Task Force and NRC regulations, and its failure to address this issue in its Decision is both inexplicable and legally erroneous.

2. Commonwealth Expert Opinion

The ASLB Majority arbitrarily rejects the position of the Commonwealth's expert that "direct experience" is relevant as a "reality check" for PRA estimates of core damage probabilities in the Pilgrim SAMA analysis, and the need to revise the Pilgrim SAMAs to take account of the real world events at Fukushima and prior core melt events (Three Mile Island and Chernobyl). *See, e.g.,* LBP-11-35 at 58. However, as Dr. Thompson notes, accepted scientific practice and past reports by the NRC itself recognize the

[33] *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), LBP-11-23, 74 N.R.C. ___ (Sept. 8, 2011) (Young, J., concurring in part and dissenting in part) (slip op. at 3).

imprecision of a theoretical PRA and the importance of direct experience and "the primacy of empirical data in scientific debate" as a truth check on this imprecise PRA model.[34] According to Dr. Thompson, because a real world event (Fukushima) has happened to challenge the fundamentals of Entergy's theoretical PRA for Pilgrim, and demonstrated that a radiological accident actually happened which Entergy's PRA predicted was unlikely for a plant (Pilgrim) of similar design, it is reasonable and consistent with accepted scientific practice to examine further the lessons of Fukushima for the Pilgrim plant, rather than simply ignore the lessons of Fukushima as an inconvenient truth. *Id.*, at ¶¶ 9-11.

Moreover, the ASLB Majority's suggestion that actual experience should not be used in probabilistic analysis[35] is contradicted by the NRC's own past practice with respect to Three Mile Island, as set out in three important policy documents: the introduction to NUREG-1150, the NRC's Report on Severe Accident Risks; the NRC's Severe Accident Policy Statement; and the NRC's Policy Statement on the Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities.[36] As the NRC stated in NUREG-1150: "The 1979 accident at Three Mile Island substantially changed the character of NRC's analysis of severe accidents and its use of PRA" including the initiation of "a substantial research program on severe accident phenomenology."

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[34] Declaration of Gordon R. Thompson in Reply to Entergy's Answer of June 27, 2011 and NRC Staff's Response of June 27, 2011 at ¶¶ 7 – 9; 12 – 13 (July 5, 2011) (Thompson Reply Declaration).

[35] *See* LBP-11-35 at 52-53.

[36] Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, NUREG-1150, Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants (1990) at 1-1; Policy Statement on Severe Reactor Accidents Regarding Future Designs and Existing Plants, 50 Fed. Reg. 32,138, 32,139 (Aug. 8, 1985); Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities, 60 Fed. 42,622 (Aug. 16, 1995).

NUREG-1150 at 1-1. Phenomenology, of course, includes actual experience as well as predicted experience, and Dr. Thompson, consistent with NRC precedent and accepted scientific method, reasonably has relied upon it in his challenge to Entergy's PRA.

Indeed the recommendations of the NRC's own Task Force reflect a lack of confidence in relying solely on theoretical PRA, since the Task Force itself relied primarily upon the direct experience of Fukushima in concluding that the safety at U.S. nuclear plants should be improved and additional mitigation measures ordered regardless of PRA analysis.[37] In any event, the ASLB's reliance upon PRA to the exclusion of actual experience is wholly at odds with its duty under NEPA.

3. Judge Young's Concurring Opinion

In weighing the factual evidence and expert opinion presented in the Commonwealth's contention, Judge Young, in her concurrence, correctly applies the NEPA standard for new and significant information approved by the Supreme Court in *Marsh*. Thus Judge Young rejects the position of the ASLB Majority, finding that the Commonwealth's information presented on Fukushima is "new" and that:

> the Commonwealth has shown at least some likelihood that information on Fukushima could have such impacts [i.e. Fukushima information could lead to significantly different analyses of the environmental consequences of renewing the Pilgrim operating license], such that it cannot be said that consideration of Fukushima-related issues 'could not affect' the ultimate decision on the renewal application.
> LBP-11-35 at 76.

[37] *See* Task Force Report at 18; *see also* Thompson Reply Declaration at 3 discussing the NRC's Accident Sequence Precursor (ASP) Program, and its use of an annual ASP Index which is, in effect, an estimate of core damage frequency. The index is aggregated across all NPPS in the U.S. fleet, despite differences in their individual features. Thus Dr. Thompson's use of direct experience as a reality check on PRA estimates of CDF also is consistent with the NRC's ASP program.

Judge Young's conclusions on the new and significant information presented by the Commonwealth are consistent with the *Marsh* standard which requires an agency – prior to taking the major federal action (i.e. relicensing) – to take a hard look at the information where there is "significant new circumstances or information relevant to the environmental concerns and bearing on the proposed action or its impacts," *Marsh*, 490 U.S. at 372, and "regardless of its [the NRC's] eventual assessment of the significance of this information." *Id.* at 385.

Therefore, consistent with *Marsh*, the Commonwealth has presented new and significant information for the Pilgrim relicensing proceeding. The Commonwealth also has raised an expert "supported, genuine dispute that could materially affect the ultimate conclusions of the SAMA cost-benefit analysis," and has identified additional SAMA analysis as potentially cost beneficial. *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-09-11, 69 N.R.C. __ (June 4, 2009)(slip op. at 7). The Commonwealth thereby has raised a material dispute of fact and expert opinion with Entergy's SAMA analysis and is entitled to a hearing – site specific or through generic rulemaking – to resolve that dispute. *Entergy Nuclear Generation Co.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 N.R.C. __ (March 26, 2010) (remanding Pilgrim ASLB decision for further proceedings on SAMA analysis).[38]

[38] The Commonwealth asserts that it has raised, through its independent expert and site specific analysis at Pilgrim, and as further supported by the NRC's own Task Force, new and significant information with sufficient particularity such that the Commonwealth's contention is ripe for a site specific hearing or generic rulemaking proceeding – as the Commission may elect. However, in the event that the Commission continues to conclude that it is premature to initiate a proceeding to take a hard look at this new and significant information now, *see* LBP-11-35 at 49 fn. 200 (citing arguments that consideration may be premature); Young, J. concurrence at 72 (finding consideration "premature"), then, as required by NEPA and the Commonwealth's AEA hearing right,

C. The ASLB violated NEPA and the AEA by applying a heightened standard for consideration of the Commonwealth's contention, which is inconsistent with the NRC's obligation to consider new and significant information from Fukushima.

1. NEPA requires the NRC to apply procedures and admissibility standards to all NEPA claims, consistent with the NRC's obligation to take a hard look at new and significant information.

It is well-established under NEPA and NRC regulations that up until the time it makes a major licensing decision, the NRC is obliged to consider new and significant information that could affect the outcome of its environmental analysis for that decision. 10 C.F.R. § 51.92, *Marsh, supra.* Like all of the NRC's responsibilities under NEPA, this duty is non-discretionary. *Calvert Cliffs Coordinating Comm. v. AEC,* 449 F.2d 1109, 1115 (D.C. Cir. 1971)(an agency's NEPA duties "are not inherently flexible" and "must be complied with to the fullest extent, unless there is a clear conflict of *statutory* authority")(emphasis in original); *see also Silva,* 473 F.2d at 292. The requirement to consider environmental issues to the fullest extent possible applies as much to the hearing process as it does to the process for NRC staff technical review. *Calvert Cliffs,* 449 F.2d at 1118. Indeed, the hearing process is the stage 'at which deliberation is most open to public examination and subject to the participation of public intervenors." *Id.* at 1119.

Because the NRC has a non-discretionary duty to consider new and significant information prior to making the decision whether to relicense the Pilgrim plant, the NRC cannot impose a burden of proof on the Commonwealth for admission of its contention which would be inconsistent with the standard for the NRC to consider new and significant information under NEPA. The First Circuit affirmed this legal principle in

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the Commission cannot lawfully relicense Pilgrim until it does so, since the NRC has an independent obligation to comply with NEPA prior to relicensing. *Supra.*

this same proceeding.[39] The NRC also may not use procedural hurdles as "blinders to adverse environmental effects," *Marsh*, 490 U.S. at 371, nor create special procedures that make it more difficult or unlikely to obtain a hearing on claims regarding new and significant information that would be inconsistent with NEPA. *See Calvert Cliffs,* 449 F.2d at 1118-19.

2. The ASLB violated NEPA by applying a heightened standard for admission of the Commonwealth's contention.

NEPA precludes the NRC from establishing a heightened admissibility standard for contentions that seek consideration of new and significant information in EISs, which is more demanding than the standard which requires the NRC to consider new and significant information as set forth by the Supreme Court in *Marsh*. Yet, that is exactly what the ASLB has done in LBP-11-35. At every stage of the decision, ranging from timeliness of the contention, to admissibility, to satisfaction of the standard for re-opening the record, the ASLB incorrectly requires the Commonwealth to *prove* its claims rather than to provide the basic level of documentation and support that is appropriate at the contention-pleading stage. *See Statement of Policy on Conduct of Adjudicatory Proceedings,* CLI-98-12, 48 NRC 18, 22 n.1 (1998) (*quoting* preamble, Rules of Practice for Domestic Licensing Proceedings – Procedural Changes in the Hearing Process, Final Rule*,* 54 Fed. Reg. 33,168, 33,171 (Aug. 11, 1989) ("at the contention filing stage[,] the

[39] *Commonwealth of Massachusetts v. NRC*, 522 F.3d 115, 127 (1st Cir. 2008)("NEPA does impose a requirement that the NRC consider any new and significant information regarding environmental impacts before renewing a nuclear power plant's operating license."); *see also United States v. Coalition for Buzzards Bay*, __ F. 3d __, *17 (1st Cir. 2011)(burden of ensuring NEPA compliance rests with the agency that is proposing the action and not those who wish to challenge that action); *Dept. of Transportation v. Public Citizen*, 541 U.S. 752, 765 (2004)("the agency bears the primary responsibility to ensure that it complies with NEPA.").

factual support necessary to show that a genuine dispute exists need not be in affidavit or formal evidentiary form and need not be of the quality necessary to withstand a summary disposition motion").

Examples of merits determinations abound in LBP-11-35. At the very outset of the ASLB Majority's analysis, for example, it makes the merits decision that it is "clear," based on reports by the IAEA and the Japanese government that the "root cause" of the Fukushima accident was the "beyond-design-basis earthquake that caused the beyond-design-basis Tsunami which resulted in a beyond-design-basis duration of station blackout." LBP-11-35 at 50. Based on this conclusion, the ASLB finds the Commonwealth's contention to be defective because it "proffers no new information relevant to the Pilgrim plant regarding station blackout or mitigation measures implemented at Pilgrim to prevent or ameliorate the effects of station blackout." *Id.* In reaching this merits conclusion, the ASLB ignores Dr. Thompson's expert opinion and the Task Force, which included a far greater range of concerns than the risks of earthquakes, tsunamis, and station blackout.

In numerous instances, the ASLB also rejects claims made in the contention because they are not proven or exhaustively documented. For example, the ASLB Majority rejects the Commonwealth's central claim, based on Dr. Thompson's report, that the combined experience of the Fukushima accident and other reactor accidents in recent decades shows that the estimated core damage frequency used in the Pilgrim SAMA analysis should be far higher than is currently assumed. According to the ASLB Majority, the Commonwealth should have shown how direct experience of reactor accidents "would or could be used to develop a spectrum of CDFs for the variety of

scenarios of core damaging event sequences examined at Pilgrim or elsewhere." *Id.,* at 51. The ASLB Majority would have required the Commonwealth to discuss the relationship between Dr.Thompson's "macroscopic observations," the Commonwealth's "assertions of massive errors in CDF, and the analysis methodologies used in any SAMA analysis (including that specifically used for Pilgrim.") *Id.,* 51 fn.203.

Similarly, the ASLB Majority faulted the contention because it "points to no environmental impact that would, or even might, arise from the failure to revise the SAMA analysis to consider information it asserts arose from the Fukushima accident." *Id.,* at 57. Anything short of conclusive and detailed proof is characterized by the ASLB Majority as mere "speculation." *Id.* This assertion also is flatly contradicted by the record, since Dr. Thompson provided the basis for detailed calculations, by way of example, regarding the tenfold increase in benefits from filtered containment venting. *See*, *supra* at 5 – 7.

The ASLB Majority's demands for exhaustive proof and detail regarding the way a previously unconsidered environmental concern would affect the outcome of the agency's analysis go far beyond what the Supreme Court in *Marsh* requires to trigger an agency's obligation to take a hard look at new and significant information before taking the major federal action. *See Marsh*, 490 U.S. at 372 (nondiscretionary duty to consider new and significant information where there are "significant new circumstances or information relevant to the environmental concerns and bearing on the proposed action or its impacts.").

The ASLB standard of review also goes far beyond what the NRC requires at the contention pleading stage. *See, e.g., Pacific Gas and Electric Co.* (Diablo Canyon

Nuclear Power Plant, Units 1 and 2), LBP-10-15, 72 N.R.C. __ (Aug. 4, 2010) (slip op. at 21)(holding that it is only necessary to determine whether the intervenor "has raised a material issue under NEPA, not whether its position is correct"); *Entergy Nuclear Operations, Inc.* (Indian Point, Units 2 and 3), LBP-08-13, 68 N.R.C. 43, 102 (2008) (concluding that at the contention stage it is inappropriate to require an intervenor to point to "specific incorrect inputs or assumptions" in the SAMA analysis – that is a matter "appropriately . . . resolved at the hearing"); *id.,* 68 N.R.C. at 113 (holding that "a petitioner is not required to redo SAMA analyses in order to raise a material issue" and that it is sufficient to show "the use of inaccurate factual assumptions"); *see also Entergy Nuclear Vermont Yankee L.L.C.* (Vermont Yankee Nuclear Power Station), LBP-06-20, 64 N.R.C. 131, 164 (2006)(rejecting assertion that expert claims were "bald" or "conclusory.").

Therefore, the ASLB Majority's reliance upon these heightened standards for contention admission, which provides the foundation for the ASLB Majority's rejection of the Commonwealth's contention, would unlawfully excuse the NRC from meeting its independent legal obligation under NEPA to take a hard look at the Commonwealth's new and significant information prior to relicensing the Pilgrim plant and is contrary to NRC precedent. *See* CLI-09-11 and CLI-10-11, discussed *supra*.

The ASLB Majority's misapplication and burdensome interpretation of contention admission standards also would deny the Commonwealth its AEA hearing right on these material relicensing issues regarding the lessons learned from Fukushima. *Union of Concerned Scientists v. NRC*, 920 F.2d 50, 56 (D.C. Cir. 1990)(NRC rules cannot be misapplied to deny AEA hearing right); *New Jersey Environmental Federation v. NRC*,

645 F.3d 220, 233 (3rd Cir. 2011)(reopen the record standard may be applied "so long as it is reasonable").

3. The ASLB Majority's primary findings to reject the Commonwealth's contention are refuted by the record and are legally erroneous.

Independent of the ASLB Majority's legal error in applying an unduly burdensome standard for contention admission, the primary findings relied upon by the ASLB Majority to reject the Commonwealth's contention also are contradicted by the record.

a. The ASLB Majority claims that a portion of the information relied upon by Dr. Thompson for his "direct experience" analysis is not "new" since he utilizes core melt experiences from TMI and Chernobyl. *Id.* at 50, 53. This cramped view of "new" information would bar a reexamination of prior events in light of the indisputably new information from Fukushima. It also would eliminate 2 of the 5 core melt events available as a reality check on the Pilgrim PRA. The Commonwealth submits that the ASLB position on new information is illogical and contrary to established scientific methods allowing for a review of cumulative experience in light of new events. Judge Young, in her concurrence, seems to share this view.

> …a contention based on 'new' information [ ] also supported by previously-existing information 'negates neither the 'new-ness' of the Fukushima-related information, nor the value of either sort of information, whatever its worth otherwise.
> LBP-11-35 at 74.

b. The ASLB Majority also claims that direct experience is inapplicable to the Pilgrim SAMA analysis because the "root cause of the accident at Fukushima was the beyond design-basis earthquake that caused the beyond design-basis

Tsunami" and that Dr. Thompson has provided "no linkage" between these events and Pilgrim SAMAs. LBP-11-35 at 50. This position is illogical in the context of the Commission's own review of the lessons learned from Fukushima for *all* U.S. nuclear plants, not just those vulnerable to the dual accidents of earthquake/tsunami. Instead, those events exposed the weaknesses in all U.S. reactors, including those like Pilgrim with designs similar to Fukushima, which could not adequately handle long term station blackout and core melt events, from whatever cause. Thus the Commission's own review plainly recognizes that the lessons learned from Fukushima have much broader application than the ASLB Majority would allow.

c. The ASLB Majority claims that Dr. Thompson "fail[ed] to address their [SAMA] cost" as part of his challenge to Entergy's SAMA analysis. LBP-11-35 at 61. This finding is plainly erroneous because, in addressing SAMAs, Dr. Thompson, by example, stated specifically that the benefits of filtered containment venting would rise by a factor of ten – and cited information for the requisite calculations for comparison (i.e. benefit would rise from $872,000 to $8,720,000). *See* Thompson 2011 Report at 16, discussed *supra*. Given this specificity, the ASLB Majority finding that Dr. Thompson "fails to address their [SAMA] cost" is incomprehensible.

d. The ASLB Majority rejects the Commonwealth's contention to the extent it addresses spent fuel pools (SFPs) because "spent fuel accidents are outside the scope of this proceeding." *Id.* at 16, 46. However, even Category 1 (generic) issues such as SFPs must be addressed in relicensing where, as here, there is new and significant information not previously addressed in the application process. *See* Denial of Petitions for Rulemaking, 73 Fed. Reg.46204, 46206 (Aug. 8, 2008).

e. Finally, the ASLB Majority's finding that there is no new and significant information related to Fukushima which is worthy of consideration by the NRC before relicensing the Pilgrim nuclear power plant is appropriately rebutted by Judge Young in her concurrence. LBP-11-35, discussed *supra*, at 73 – 74 (the information is "new") at 76 – 77 and fn 13 (the information is significant within the meaning of *Marsh*). This is consistent with her earlier view:

> I would further find that information regarding the Fukushima accident clearly is 'significant,' as required by 10 C.F.R. § 2.326(a)(2), both as a matter of obvious fact, and with specific reference to the Pilgrim SAMA analysis, including those aspects of it that concern containment failure, offsite consequences, and the functioning and use of DTV [__].[40]

Therefore, the Commonwealth has provided new and significant information, on the impacts of relicensing the Pilgrim plant which should be considered by the NRC prior to granting a license extension for an additional twenty years.

IV. Conclusion

The Commonwealth respectfully requests the Commission to reverse and vacate LBP-11-35 and refer this matter for further proceedings as requested herein.

Respectfully submitted,
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[40] LBP-11-23, 73 N.R.C. at __, (slip op. of Marshall, J. concurring in part and dissenting in part at 3)(September 8, 2011).

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE COMMISSION

In the Matter of	)	
Entergy Nuclear Generation Co.	)	Docket No. 50-293-LR
And Entergy Nuclear Operations, Inc.	)	
(Pilgrim Nuclear Power Station)	)	December 8, 2011

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **COMMONWEALTH OF MASSACHUSETTS BRIEF ON APPEAL OF LBP-11-35, DENYING ADMISSION OF THE COMMONWEALTH CONTENTION, HEARING, REQUEST, ASSOCIATED WAIVER REQUEST, AND ALTERNATIVE REQUEST FOR RULEMAKING, ON NEW AND SIGNIFICANT INFORMATION ARISING FROM THE ACCIDENT AT FUKUSHIMA AND THE SIGNIFICANCE OF THAT INFORMATION FOR THE PILGRIM RELICENSING PROCEEDING**, dated December 8, 2011, were provided to the Electronic Information Exchange (EIE) for service on the individuals below and by electronic mail as indicated by an asterisk*:

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