

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD**

In the Matter of
Entergy Corporation

Docket # 50-293-LR

Pilgrim Nuclear Power Station

License Renewal Application

June 2, 2011

**COMMONWEALTH OF MASSACHUSETTS' MOTION TO ADMIT
CONTENTION AND, IF NECESSARY, TO RE-OPEN RECORD REGARDING
NEW AND SIGNIFICANT INFORMATION REVEALED BY FUKUSHIMA
ACCIDENT**

I. INTRODUCTION

The Commonwealth of Massachusetts respectfully requests the Atomic Safety and Licensing Board (ASLB) to admit a new contention to the license renewal proceeding for the Pilgrim nuclear power plant (NPP).¹ The Commonwealth's contention, which is separately submitted today in this proceeding, challenges the adequacy of the U.S. Nuclear Regulatory Commission's (NRC's) environmental analysis for the Pilgrim nuclear reactor and spent fuel pool on the basis that it does not address new and significant information revealed by the Fukushima accident which shows that the environmental impacts of re-licensing the Pilgrim NPP are more significant than presented in the environmental analyses that the NRC currently relies on for the proposed re-licensing of the Pilgrim NPP.

¹ Commonwealth of Massachusetts' Contention Regarding New and Significant Information Revealed by the Fukushima Radiological Accident (June 2, 2011).

This motion addresses the standard in 10 C.F.R. § 2.309(f)(2)(i)-(iii) for the timely filing of contentions based on newly discovered information. The Commonwealth believes that 10 C.F.R. § 2.309(f)(2)(i)-(iii) is the only such regulation that must be addressed in this motion, because the record of this proceeding remains open and because the contention is timely filed. In the event that the ASLB should determine that the record has closed or that the contention is not timely, however, the motion also addresses the standard for re-opening the record, as set forth in 10 C.F.R. §§ 2.326(a) and § 2.309(c), respectively. *See Vermont Yankee, L.L.C., and Entergy Nuclear Operations, Inc.* (Vermont Yankee Nuclear Power Station, LBP-10-19, __ NRC __ (October 28, 2010).

This motion is supported by the expert declaration and report of Dr. Gordon R. Thompson.²

II. THE COMMONWEALTH SATISFIES THE NRC’S STANDARDS FOR FILING CONTENTIONS AFTER THE INITIAL DEADLINE ESTABLISHED IN THE HEARING NOTICE.

The Commonwealth respectfully submits that its contention is timely under the Commission’s standard in 10 C.F.R. § 2.309(f)(2)(i)-(iii). Therefore, as discussed below in Section II.A, it should be admitted. In the event that the Pilgrim ASLB should determine that the contention is not timely, the Commonwealth nevertheless satisfies the standard for a “nontimely filing” under 10 C.F.R. § 2.309(c)(1)(i)-(iii). *See* Section II.B below.

² Declaration of Dr. Gordon R. Thompson in Support of Commonwealth of Massachusetts Contention and Related Petitions and Motions (June 1, 2011); New and Significant Information From the Fukushima Daiichi Accident in the Context of Future Operation of the Pilgrim Nuclear Power Plant (June 1, 2011) (Thompson Report).

A. The Contention is Timely.

The Commonwealth's contention meets the NRC's three-part standard for a timely contention.

1. Relevant information not previously available.

The information on which the contention is based was not previously available because it relates to the recent accident at the Fukushima Daiichi Nuclear Power Station, which did not begin until the beginning of March 2011 and is still ongoing.

2. Information is materially different.

The information on which the contention is based is materially different than information previously available, *see* 10 C.F.R. § 2.309(f)(2)(ii), because it is based primarily on the actual occurrence and experience of a radiological accident, as contrasted with predictions of the behavior of an accident based on probabilistic risk assessment. *See* Thompson Report at 14-18. Thus, the experience of the Fukushima accident provides new insights into the probability of reactor core melt events, the potential duration of station blackouts, the effectiveness of mitigative measures, and the behavior of spent fuel pools under accident conditions. The new information also shows that the NRC's previous environmental analyses significantly underestimated the environmental impacts of core melt accidents and spent fuel pool severe accidents. For example, core melt accidents are more likely than previously estimated by the NRC by an order of magnitude. Thompson Report at 17. Moreover, the Fukushima accident shows that filtered containment venting could substantially reduce the atmospheric release of radioactive material from the Pilgrim NPP during a core-damage accident. *Id.* at 29.

In addition, contrary to the NRC's previous estimates that uncovering of spent fuel is unlikely to lead to a severe accident, the Fukushima accident shows that the conditional probability of a pool fire is substantial. *Id.* at 20, 27. The Fukushima accident also shows that there is a potential for hydrogen explosions, which have not previously been considered for the Pilgrim NPP. *Id.* at 25.

Finally, following the Fukushima accident, the NRC released certain information about post-9/11 measures relied on by the NRC for its estimate that spent fuel pool fires are unlikely, although these measures appear to be similar to measures that were tried unsuccessfully at Fukushima. Thompson Report at 19, 21-23. That information is not only new but materially different from previously available information, because previously virtually no information was available on these measures.

3. The contention is timely.

The Commonwealth has submitted its new contention in a timely fashion. 10 C.F.R. § 2.309(f)(2)(iii). The NRC's ASLBs customarily treat contentions as timely if they are submitted within 30 days of the occurrence of the triggering event. *Shaw Areva MOX Services, Inc.* (Mixed Oxide Fuel Fabrication Facility), LBP-08-10, 67 NRC 460, 493 (2008). The Fukushima accident began in March 2011 and is ongoing. Publicly available information about the accident in English language – and probably in Japanese as well – has been emerging constantly since the accident began, but is incomplete and inconsistent at this time. Additional information about the causes and effects of the Fukushima accident is likely to become available over the coming months. Thompson Report at 6-7. The NRC is also conducting an investigation whose initial results will not be available until the third week of July 2011, and which is likely to continue for some

months afterwards. Thompson Report at 8. Thus, the Commonwealth is submitting this contention before the NRC has even published its initial findings about an accident that continues to unfold.

Moreover, from a technical standpoint it would have been preferable to wait for further developments before filing a contention. Thompson Declaration, par. 14; Thompson Report at 5-6. However, in light of the fact that a license renewal decision for the Pilgrim NPP may be imminent, the Commonwealth is filing its contention and waiver petition now, based on information that is currently available. The Commonwealth's decision to proceed now is also affected by the facts that (a) the NRC has proceeded, post-Fukushima, with the issuance of license extensions for other nuclear power plants, including the Vermont Yankee NPP located ten miles from the Massachusetts border (and which has a design virtually identical to the Pilgrim NPP) and (b) the NRC Commissioners have not ruled on the Commonwealth's Petition to suspend the Pilgrim Relicensing, pending consideration by the Commission of the new and significant information arising from the Fukushima accident regarding Spent Fuel Pool (SFP) and related risks and regulatory requirements.³ Therefore the contention is timely.

B. The Contention Meets the Standard for Admission of Nontimely Contentions.

In the event that the ASLB should decide that the contention is not timely, the Commonwealth's contention also satisfies a balancing of the NRC's late-filed contention criteria in 10 C.F.R. § 2.309(c)(i)-(viii).

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

1. Good cause

The Commonwealth satisfies the first and most important factor – “good cause” (10 C.F.R. § 2.309(c)(1)(i)) – because, as discussed above in Section II.A, it has filed the contention while information is still being released about the accident, and within the same time frame as the NRC’s initial study of the implications of the Fukushima accident. As also discussed above, it would have been reasonable for the Commonwealth to await the development of more information before filing a contention, but had no choice but to go ahead with its contention, given the potential imminence of a licensing decision for Pilgrim and given the Commission’s failure so far to respond to the Commonwealth’s request to suspend the decision and establish a schedule for the raising of Fukushima-related concerns in the licensing proceeding.

Accordingly, the Commonwealth has good cause to submit its contention now.

2. Right to be made a party to the proceeding

Second, as an interested state government that has met the procedural requirements for submission of a nontimely contention, the Commonwealth has the “right under the [Atomic Energy] Act to be made a party to the proceeding.” 10 C.F.R. § 2.309(c)(1)(ii). *See also Consolidated Edison Co. of New York* (Indian Point, Unit No. 2) *and Power Authority of the State of New York* (Indian Point, Unit No. 3), LBP-82-25, 15 NRC 715, 723 (1982); *Commonwealth of Massachusetts v. U.S. Nuclear Regulatory Commission*, 522 F.3d 115 (1st Cir. 2008)(discussing Commonwealth rights of participation in the Pilgrim and Vermont Yankee relicensing proceedings). Because the Pilgrim facility is located within the Commonwealth of Massachusetts, the

Commonwealth need not demonstrate its standing to participate in this proceeding. 10 C.F.R. § 2.309(d)(2).

3. Nature of the requestor's interest

Third, the significant “nature” the Commonwealth’s “property, financial or other interest in the proceeding” (10 C.F.R. § 2.309(c)(1)(iii)) is presumed by 10 C.F.R. § 2.309(d)(2), which excuses the Commonwealth from providing a demonstration of its standing to protect the interests of its citizens.

4. Possible effect of an order on requestor's interest

Fourth, the Commonwealth’s interests in a safe, clean and healthful environment would be served by the issuance of an order requiring the NRC Staff to prepare a revised supplement to the Generic Environmental Impact Statement for License Renewal which addresses the new and significant information yielded by the Fukushima accident regarding the environmental impacts of core-melt and spent fuel pool accidents and weighs the relative costs and benefits of measures for avoiding or mitigating those impacts. 10 C.F.R. § 2.309(c)(1)(iv).

5. Availability of other means to protect the Commonwealth's interests

Fifth, the Commonwealth has no means other than this proceeding to protect its interests, as noted above, and in requiring the NRC to fully comply with NEPA in considering the environmental impacts of re-licensing the Pilgrim nuclear power plant. 10 C.F.R. § 2.309(c)(1)(v). Only through this hearing does the Commonwealth have a right that is judicially enforceable to seek compliance by the NRC with NEPA before the Pilgrim NPP is permitted to operate and impose potential severe accident risks on the residents of Massachusetts for another 20 years.

6. Extent the Commonwealth's interests are represented by other parties

Sixth, there are no other parties representing the Commonwealth's interest in this proceeding with respect to the issue raised in the Petitioners' contention. 10 C.F.R. § 2.309(c)(1)(vii). While Pilgrim Watch is participating as an intervenor in the case, no other party can represent the Commonwealth's interests in protecting the safety and environment of its citizens. Moreover, the Commonwealth has an interest not shared by any other party in presenting the issues that it raised in its contention and rulemaking petition of 2006, which are supported by new and significant information arising from the Fukushima accident, and which previously were incorrectly disposed of by the Commission. *See* Contention at 2, Thompson Report at 26-27.

7. Extent to which participation will broaden the issues.

Seventh, while the Commonwealth's participation may broaden or delay the proceeding (10 C.F.R. § 2.309(c)(1)(vi)), this factor may not be relied on to exclude the contention, because the NRC has a non-discretionary duty to consider new and significant information that arises before it makes its licensing decisions. *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360 (1989). Moreover, the Commonwealth's contention shows that the NRC improperly dismissed the concerns that the Commonwealth initially raised in a timely contention in 2006 regarding spent fuel pool hazards. As a matter of fundamental fairness, the Commonwealth's contention should be admitted.

8. Extent to which the Commonwealth will assist in the development of a sound record.

Finally, the Commonwealth will assist in the development of a sound record, because its contention is supported by the expert opinion of a highly qualified expert, Dr. Gordon R. Thompson, who is prepared to testify in a hearing on the contention. Thompson Declaration, par. 13. His expert report, which is attached to the contention, summarizes the testimony that he would present in a hearing.

Accordingly, the Commonwealth has satisfied the test for nontimely contentions under 10 C.F.R. § 2.309(c).

III. THE COMMONWEALTH SATISFIES THE NRC'S STANDARDS FOR RE-OPENING A CLOSED HEARING RECORD.

Given that the Pilgrim license renewal case is still before the ASLB, it appears that the record of the proceeding is still open and therefore a motion to re-open the record is not necessary in order to gain admission of the contention. However, the applicant, Entergy Corp., has recently argued that new contentions submitted by another party must satisfy the standard for re-opening the record, *see, e.g.*, Entergy Answer Opposing Pilgrim Watch Request for Hearing on a New Contention (February 14, 2011). Therefore, while the Commonwealth disagrees with Entergy's interpretation of NRC case law on this issue – that a proceeding which has never resolved all pending issues raised in that proceeding can still present a “closed” record that must be re-opened, *cf.* Fed.R.Civ.P. 58 (Entering Judgment) – in the alternative the Commonwealth addresses the standard for re-opening the record pursuant to 10 C.F.R. § 2.326(a)(1)-(3).⁴

⁴ The additional burden placed upon the Commonwealth to reopen a “closed” record in these circumstances also is contrary to the Commonwealth's right under the Atomic Energy Act to a hearing on all issues material to licensing. Commonwealth of

The Commonwealth respectfully submits that the record must be re-opened in order to ensure that the NRC fulfills its non-discretionary duty to consider new and significant information revealed by the radiological accident in Fukushima, Japan, which bears on the environmental impacts of re-licensing the Pilgrim nuclear power plant.

A. The Motion is Timely.

For all the reasons discussed above in Section II.A.1 – II.A.3, the Commonwealth’s motion to re-open the record is timely.

B. The Motion Addresses a Significant Environmental Issue.

As stated in the attached Declaration of Dr. Gordon R. Thompson in par. 15 and in Dr. Thompson’s Report, the issues raised by the Commonwealth’s contentions are significant and indeed exceptionally grave, for three reasons. First, the Fukushima accident shows that a severe reactor and/or spent-fuel-pool accident is significantly more likely than estimated or assumed in the NRC’s current environmental analyses for the Pilgrim NPP. Second, the experience of the Fukushima accident shows that the accident mitigation measures relied on by the NRC are inadequate to prevent the type of catastrophic damage at Pilgrim that has occurred at Fukushima. Finally, the Fukushima accident shows how corrosive and debilitating to accident responders is the high level of secrecy that the NRC has maintained with respect to accident mitigation measures, thereby contributing to the use of ineffective measures at Fukushima. Accident mitigation measures (excluding sensitive, site-specific details) should be subject to public

Massachusetts Petition for Waiver of 10 C.F.R. Part 51 Subpart A, Appendix B or, in the Alternative, Petition for Rulemaking to Rescind Regulations Excluding Consideration of Spent Fuel Storage Impacts From License Renewal Environmental Review (June 1, 2011). IV.B citing *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1439 (D.C. Cir. 1984), *cert. denied*, 469 U.S. 1132 (1985).

scrutiny in an appropriate environmental review process, which includes those with primary emergency responsibilities such as the Commonwealth, in order to ensure that they are known to emergency personnel and have been adequately evaluated for effectiveness.

C. The Motion Demonstrates That a Materially Different Result Would Be or Would Have Been Likely Had the Newly Proffered Evidence Been Considered Initially.

As discussed in par. 16 of Dr. Thompson's Declaration and in Section VI of his Report, a materially different result would be likely if the NRC were to adequately consider the implications of the Fukushima accident in its environmental analyses for the Pilgrim NPP. In particular, the NRC would consider a much broader and more rigorous array of severe accident mitigation alternatives (SAMAs) than have been previously considered, including systems for hydrogen control, containment venting, and replacement of high-density spent fuel storage racks with low-density, open-frame racks. Also, in view of the high risk of a radioactive release at Pilgrim, any accident-mitigation measure or SAMA that is credited for the future licensed operation of the Pilgrim NPP should be incorporated in the plant's design basis.

D. The Commonwealth Has Justified the Admission of its Contention And the Granting of Party Status.

As provided in 10 C.F.R. § 2.326(d), a motion to re-open the record which relates to a contention not previously in controversy among the parties must satisfy the requirements for nontimely contentions in § 2.309(c). As demonstrated above in Section II, the Commonwealth satisfies that standard.

E. Dr. Thompson's Declaration and Expert Report Fully Support the Commonwealth's Motion.

As required by 10 C.F.R. § 2.326(b), this motion is supported by a declaration that sets forth the factual and/or technical bases for the Commonwealth's claims that the criteria of 10 C.F.R. § 2.326(a) have been satisfied. *See* Thompson Declaration and accompanying expert report. As demonstrated in his declaration, Dr. Thompson is a highly qualified expert who is familiar with the environmental analyses prepared by the NRC and the licensee which are relevant to the proposed re-licensing of the Pilgrim NPP. The information in Dr. Thompson's declaration and his expert report meets the NRC's standard for admissibility of evidence, because it is relevant, material, and reliable. 10 C.F.R. § 2.337(a). Finally, for each subpart of the Commonwealth's contention, the Commonwealth has specified the evidence in Dr. Thompson's Report on which it relies. Accordingly, the Commonwealth has satisfied the requirements of 10 C.F.R. § 2.326(b).

IV. CONCLUSION

For the foregoing reasons, the Commonwealth's motion to admit its contention and, if necessary to re-open the record, should be granted.

Respectfully submitted,

Signed (electronically) by
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June 2, 2011

On June 1, 2011, the Commonwealth notified all parties of record of its intent to make this filing. The NRC Staff has advised that it will object; no other party has responded.

