

**From:** Lamb, John  
**To:** ["Paul Gunter" \(paul@beyondnuclear.org\)](mailto:paul@beyondnuclear.org)  
**Cc:** [Davis, Jack](#); [Hair, Christopher](#); [Banic, Merrilee](#); [Russell, Andrea](#); [Rodriguez, Veronica](#); [Taylor, Robert](#); [Dennig, Robert](#); [Schmidt, Wayne](#); [Screnci, Diane](#); [Sheehan, Neil](#); [Dacus, Eugene](#); [Weil, Jenny](#); [Tift, Doug](#); [McNamara, Nancy](#); [Uhle, Jennifer](#)  
**Subject:** Email Response to Beyond Nuclear Regarding PRB Initial Recommendation for 2.206 Petition on Mark I & II BWR Vents  
**Date:** Monday, July 08, 2013 12:40:00 PM  
**Importance:** High

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Dear Mr. Gunter:

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Per Management Directive (MD) 8.11, I am writing to inform you of the Petition Review Board's (PRB's) initial recommendation made on June 17, 2013, regarding your petition dated March 21, 2013 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML13085A218), as supplemented (ADAMS Accession Nos. ML13144A127, ML13144A135, ML13144A161, ML13134A372, and ML13144A173), the Petitioners urge the NRC to revoke the operating licenses for the GE Mark I & II BWRs in the United States.

In accordance with MD 8.11, Part III, C.2, "Criteria For Rejecting Petitions Under 10 CFR 2.206", the PRB's initial recommendation is that your petition raises issues that have already been reviewed, and evaluated by the NRC; therefore, your petition meets the criteria for rejection. See below for details.

Per MD 8.11, you have another opportunity to provide additional facts to the PRB now that you have been informed of the initial recommendation. Please advise me by Monday, July 22, 2013, if you want to arrange a teleconference or public meeting so that you can provide additional information in support of your 10 CFR 2.206 petition request. If I do not receive a response from you by July 29, 2013, the PRB's initial recommendation will become final and will be documented in a 2.206 closure letter.

Thank you for your attention to this matter.

John G. Lamb, Senior Project Manager  
Plant Licensing Branch 1-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation  
301-415-3100

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## **PRB INITIAL RECOOMENDATION**

The Commission's primary decisionmaking tool is a written issue paper submitted by the NRC staff to the Commission, known as a "SECY Paper." Issues before the Commission are decided by majority vote. After the Commission completes voting on a SECY Paper, the Office of the Secretary (SECY) records the decision in a memorandum to the staff called "[Staff Requirements Memorandum](#)" (SRM) and also issues a "[Commission Voting Record](#)" (CVR) which includes the record of votes and individual views of all Commissioners.

On November 26, 2012, the NRC staff submitted SECY-12-0157, "Consideration of Additional Requirements for Containment Venting Systems for Boiling Water Reactors with Mark I and II Containments." The NRC staff recommended Option 3 (filtered vents). On March 19, 2013, the CVR and SRM for SECY-12-0157 were issued. SRM SECY-12-0157 approved Option 2 (vents capable of operating under severe accident conditions) and approved a rulemaking to consider Options 3 and 4 (severe accident confinement strategy).

The NRC staff reviewed the current licensing basis of the Mark I and II BWRs and stated the following in SECY-12-0157:

For currently operating plants, the design of the containment barrier provides either (1) a large enough air volume to accommodate the energy released from a design-basis loss-of-coolant accident (LOCA) while not exceeding the design pressure for the containment, or (2) systems that include water or ice to absorb the energy released from a LOCA by condensing steam and thereby suppressing the increase in pressure to values below the design pressure for the containment. BWRs employ such pressure suppression containment designs. Mark I and Mark II containments are specific containment configurations for BWRs that use water suppression pools to condense the steam released from the reactor following a LOCA or other plant transients or accidents. As a result of the heat capacity of a suppression pool (i.e., the ability to condense steam), Mark I and Mark II containments have relatively small free volumes compared to other types of containments (e.g., large dry containments). For additional background information on Mark I and Mark II containments, see Enclosure 2 [ADAMS Accession No. ML12326A344].

Mark I and Mark II containments (as well as other pressure suppression containments) have been shown to be capable of addressing the requirements related to the design-basis accidents that the NRC and its predecessor (Atomic Energy Commission) established for the licensing of currently operating plants. However, various studies (e.g., NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants") and events have shown that the Mark I and Mark II containments do not have the same margins of safety that other containments (e.g., large dry ones) have during accidents that exceed the conditions established by design basis events. These include events that result in an extended addition of energy (i.e., decay heat from the reactor core) to the containment and suppression pool without having available heat removal systems that include pumps and heat exchangers to direct that energy to the ultimate heat sink (e.g., the atmosphere, a nearby river, reservoir), and events that result in the production of significant quantities of noncondensable gases (e.g., hydrogen, carbon monoxide) that are released into the containment. The events at the Fukushima Dai-ichi nuclear power plant involved an extended loss of electrical power and heat-removal systems, resulting in containment pressures that exceeded the containment design pressure. Plant conditions at Fukushima Dai-ichi (e.g., loss of all electrical power or station blackout) hampered the efforts of operators to address the

containment overpressure conditions using the installed venting systems, which ultimately contributed to the compromise of all fission product barriers and significant releases of radioactive material. The insights that the NRC gained from Fukushima Dai-ichi on the difficulties in venting the containments led the agency to impose additional requirements for reliable hardened venting systems for plants with Mark I and Mark II containments. It also led the NRC to initiate proposed new regulations for all plants to improve operator readiness to respond to severe accident conditions.

In the SRM for SECY -12-0157, the Commission directed the NRC staff to issue a modification to Order EA-12-050 requiring licensees with Mark I and Mark II containments to “upgrade or replace the reliable hardened vents required by Order EA-12-050 with a containment venting system designed and installed to remain functional during severe accident conditions.” The NRC staff has determined that continued operation does not pose an imminent risk to public health and safety; however, the additional requirements outlined in Order EA-13-109 are necessary in light of insights gained from the events at Fukushima Dai-ichi. The NRC issued Order EA-13-109 on June 6, 2013 (ADAMS Accession No. ML13143A321).

In accordance with MD 8.11, Part III, C.2, “Criteria For Rejecting Petitions Under 10 CFR 2.206”, the PRB’s initial recommendation is that the petition raises issues for Mark I and Mark II BWRs have already been reviewed, and evaluated by the Commission; therefore, the petition meets the criteria for rejection.