



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

September 5, 2018

Mr. W. Anthony Nowinowski, Executive Director  
PWR Owners Group, Program Management Office  
Westinghouse Electric Company  
1000 Westinghouse Drive, Suite 380  
Cranberry Township, PA 16066

SUBJECT: DRAFT SAFETY EVALUATIONS BY THE OFFICE OF NUCLEAR REACTOR REGULATION BAW-2192, SUPPLEMENT 1, REVISION 0, "LOW UPPER-SHELF TOUGHNESS FRACTURE MECHANICS ANALYSIS OF REACTOR VESSELS OF B&W OWNERS REACTOR VESSEL WORKING GROUP FOR LEVEL A&B SERVICE LOADS" AND TOPICAL REPORT BAW-2178, SUPPLEMENT 1, REVISION 0, "LOW UPPER-SHELF TOUGHNESS FRACTURE MECHANICS ANALYSIS OF REACTOR VESSELS OF B&W OWNERS REACTOR VESSEL WORKING GROUP FOR LEVEL C&D SERVICE LOADS"

Dear Mr. Nowinowski:

By letter dated December 15, 2017, as supplemented by letters dated June 15 and June 29, 2018, the Pressurized Water Reactor Owner's Group (PWROG) submitted BAW-2192, Supplement 1, Revision 0, "Low Upper-Shelf Toughness Fracture Mechanics Analysis of Reactor Vessels of B&W Owners Reactor Vessel Working Group for Level A&B Service Loads," and BAW-2178, Supplement 1, Revision 0, "Low Upper-Shelf Toughness Fracture Mechanics Analysis of Reactor Vessels of B&W Owners Reactor Vessel Working Group for Level C&D Service Loads," for review and approval by the U.S. Nuclear Regulatory Commission (NRC).

The NRC staff has completed its review of the subject topical reports (TRs). The NRC staff concludes that BAW-2192, Supplement 1, Revision 0 and BAW-2178, Supplement 1, Revision 0 demonstrate, for the seven plants within the scope of the TRs, that there is adequate margin of safety against ductile fracture in the reactor pressure vessel welds for Service Level A and B loads, and for Service Level C and D loads through 80 calendar years of operation. The NRC staff also concludes that both TRs may be referenced in subsequent license renewal applications for the plants within scope of the report, as a basis for demonstrating that the upper shelf energy time-limited aging analysis has been projected in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 54.21(c)(1)(ii), for Linde 80 welds in those plants.

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Individual licensees wishing to reference either TR as the basis for demonstrating compliance with the 10 CFR Part 50, Appendix G requirements related to USE must generate 80-year neutron fluence at reactor pressure vessel locations in accordance with NUREG-2192, "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants," to demonstrate that the fluence estimates provided in Table 3-1 are applicable to their plants. This is applicant/licensee Action Item 1.

Pursuant to Section 2.390 of Title 10 of the *Code of Federal Regulations* (10 CFR), we believe that the enclosed draft safety evaluations (SEs) may contain proprietary information denoted by bold brackets (**[ ]**). If you believe that any information in the enclosures is proprietary, please identify such information line-by-line and define the basis pursuant to the criteria of 10 CFR 2.390. Twenty working days are provided for you to comment on the proprietary aspects and provide any factual errors or clarity concerns contained in the SEs. The final SEs will be issued after making any necessary changes and a non-proprietary version will be made publicly available. The NRC staff's disposition of your comments on the draft SEs will be discussed in the final SEs.

To facilitate the NRC staff's review of your comments, please provide a marked-up copy of the revised draft SEs showing proposed changes and provide a summary table of the proposed changes.

If you have any questions, please contact Jason Drake at 301-415-8378.

Sincerely,

/RA/

Dennis C. Morey, Chief  
Licensing Processes Branch  
Division of Licensing Projects  
Office of Nuclear Reactor Regulation

Docket No. 99902037

Enclosures:

1. SE of BAW-2192, Supplement 1, Revision 0
2. SE of BAW-2178, Supplement 1, Revision. 0

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**ADAMS Accession Nos.**

**PKG: ML18233A438**

**Transmittal LTR: ML18236A378**

**Enclosures: ML18236A381**

**\*concurrence via e-mail**

**NRR-106**

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