



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

April 29, 2019

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: FINAL SAFETY EVALUATIONS FOR BAW-2192, SUPPLEMENT 1NP, 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 1NP, 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, 2018, 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 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 RPV welds for Service Level A and B loads, and for Service Level C and D loads through 80 calendar years of operation. The 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 USE TLAA has been projected in accordance with Title 10 *Code of Federal Regulations* (CFR) 54.21(c)(1)(ii), for Linde 80 welds in those plants.

Individual licensees wishing to reference either TR as the basis for demonstrating compliance with the 10 CFR 50, Appendix G requirements related to USE must generate 80-year neutron fluence at RPV 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.

In accordance with the guidance provided on the NRC website, we request that the PWROG publish approved versions of TRs BAW-2192, Supplement 1, Revision 0 and BAW-2178, Supplement 1, Revision 0, within 3 months of receipt of this letter. The approved versions shall incorporate this letter and the enclosed final safety evaluation (SE) after the title page. Also, they must contain historical review information, including NRC requests for additional information (RAIs) and your responses. The approved versions shall include an "-A" (designating approved) following the TR identification symbol.

As an alternative to including the request for RAIs and RAI responses behind the title page, if changes to the TR were provided to the NRC staff to support the resolution of RAI responses, and if the NRC staff reviewed and approved those changes as described in the RAI responses, there are two ways that the accepted version can capture the RAIs:

1. The RAIs and RAI responses can be included as an Appendix to the accepted version.
2. The RAIs and RAI responses can be captured in the form of a table (inserted after the final SE) which summarizes the changes as shown in the approved version of the TR. The table should reference the specific RAIs and RAI responses which resulted in any changes, as shown in the accepted version of the TR.

If future changes to the NRC's regulatory requirements affect the acceptability of these TRs, PWROG will be expected to revise the TRs appropriately or justify their continued applicability for subsequent referencing. Licensees referencing these TRs would be expected to justify their continued applicability or evaluate their plant using the revised TRs.

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. Safety Evaluation of BAW-2192,  
Supplement 1NP, Revision 0
2. Safety Evaluation of BAW-2178,  
Supplement 1NP, Revision 0

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**ADAMS Accession Nos.:**

**ML19106A193 -Pkg**

**ML19106A196 -Ltr.**

**ML19106A197 -Enclosure 1**

**ML19106A198 -Enclosure 2**

**ML18333A131 -Comment**

**\*concurring via e-mail**

**NRR-106**

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