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PWROG-18068-NP, Revision 1
Project Number 99902037

July 27, 2021

OG-21-144

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Subject: PWR Owners Group
Submittal of PWROG-18068-NP, Revision 1, “Use of Direct Fracture Toughness for Evaluation of RPV Integrity”

The purpose of this letter is to submit PWROG-18068-NP, Revision 1, “Use of Direct Fracture Toughness for Evaluation of RPV Integrity” for Nuclear Regulatory Commission (NRC) review and approval in accordance with the NRC topical report (TR) program for review and acceptance for referencing in regulatory actions (Enclosure 1).

The TR contains a methodology that justifies the use of ductile-brittle transition temperature direct fracture toughness data to evaluate reactor pressure vessel (RPV) integrity as an alternative to the requirements of pressurized thermal shock (PTS) (10 CFR 50.61) and pressure-temperature (P-T) limit curves (10 CFR 50, Appendix G).

Specifically, this TR discusses a methodology to:

- Generate a ductile-brittle transition reference temperature (T_0)
- Adjust the data for differences between the tested material and the RPV component of interest
- Account for test result uncertainty and material variability in the respective RPV component
- Apply the data using the ASME Section XI Code, 2017 Edition

TR Classification: As discussed above, this TR provides an alternative methodology to the requirements of 10 CFR 50.61 and 10 CFR 50, Appendix G.

Specialized Resource Availability: This TR is being submitted to the NRC for review and approval so that the NRC approved version can be utilized by licensees for performing plant-specific alternative evaluations of 10 CFR 50.61 and 10 CFR 50, Appendix G using transition temperature fracture toughness data. An exemption to 10 CFR 50.61 is required to use the alternative methodology in PWROG-18068. This TR provides a methodology to use fracture toughness data as an alternative to specific sections of NRC-approved topical reports WCAP-14040-A, Revision 4; BAW-10046A, Revision 2 and BAW-10046, Revision 4.

This letter transmits PWROG-18068-NP, Revision 1 (Enclosure 1).

Applicability: This TR is applicable to all PWR NSSS.

NRC Review Schedule:

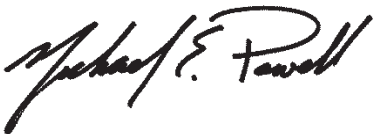
The PWROG requests that the NRC complete their review of the TR by August 2022.

Correspondence associated with this non-proprietary transmittal should be addressed to:

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If you have any questions, please do not hesitate to contact me at (602) 999-2080 or Mr. W. Anthony Nowinowski, Program Manager of the PWR Owners Group, Program Management Office at (412) 374-6855.

Sincerely yours,



Michael Powell, Chief Operating Officer and Chairman
PWR Owners Group

MP:JPM:rg

Enclosure 1: (One Copy) PWROG-18068-NP, Revision 1, "Use of Direct Fracture Toughness for Evaluation of RPV Integrity" (Non-Proprietary)

cc: PWROG PMO
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