UNITED STATES
NUCLEAR REGULATORY COMMISSION
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August 3, 2021

MEMORANDUM TO: Dennis C. Morey, Chief
Licensing Processes Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

FROM: Leslie C. Fields, Senior Project Manager ***/RA/***
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SUBJECT: SUMMARY OF THE OCTOBER 14, 2020, PUBLIC MEETING REGARDING THE PRE-SUBMITTAL OF TOPICAL REPORT PWROG-18068, "USE OF DIRECT FRACTURE TOUGHNESS FOR EVALUATION OF REACTOR PRESSURE VESSEL INTEGRITY"

On October 14, 2020, the U.S. Nuclear Regulatory Commission (NRC) staff held a public meeting with the Pressurized Water Reactor Owners Group (PWROG) and industry representatives to discuss Topical Report (TR) PWROG-18068, "Use of Direct Fracture Toughness for Evaluation of Reactor Pressure Vessel Integrity," prior to submittal to the NRC for review and approval. The meeting gave industry the opportunity to discuss the TR methodology associated with reactor pressure vessel (RPV) integrity as an alternative to meet the requirements of pressurized thermal shock (PTS) (Title 10 of the *Code of the Federal Regulations* (10 CFR) 50.61) and pressure-temperature (P-T) limit curves (10 CFR Part 50, Appendix G). The meeting notice and presentation slides are publicly available in the Agencywide Documents Access and Management System (ADAMS) under Package Accession No. ML21197A206. The list of meeting attendees is enclosed.

Background

On March 2, 2016, the NRC staff conducted a public meeting for the PWROG to present its plan for transitioning RPV integrity (ADAMS No. ML16208A412) to direct fracture toughness. During the meeting, the NRC staff asked the PWROG representatives about the plan to evaluate test results from a data sample to ensure that the variability in the RPV will be addressed through the adjustments to data and/or uncertainty terms. Additionally, the NRC staff inquired about how the PWROG plans to address: 1) the adequacy of the mini-C(T) specimen size, 2) the Material Test Reactor flux effect and irradiation temperature, 3) the consideration of adding the PTS limiting materials to the test matrix, and 4) other materials that are not tested which could become limiting. To address the NRC staff's comments, the PWROG made changes/updates to the methodology of TR PWROG-18068 which was the subject of the October 14, 2020, meeting.

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Discussion

The meeting provided the PWROG the opportunity to discuss a forthcoming TR methodology that will potentially: 1) generate irradiated master curve reference temperature (T_0) data, 2) adjust data for differences between the tested material and the RPV component of interest, 3) account for test result uncertainty and material variability in the respective RPV component, and 4) apply data using a robust bases and the American Society of Mechanical Engineers Section XI Code.

As a part of the high-level summary, the PWROG representatives stated that the potential benefits of an irradiated direct fracture toughness data evaluation methodology could establish a robust fracture toughness basis for license renewal terms and provide potential savings for both the NRC and its licensees for managing RPV integrity. In addition, according to the PWROG, the methodology could ensure public safety by enabling a statistical understanding for the existing safety margin.

Final Comments and Path Forward

At the conclusion of the meeting, the PWROG representatives presented conclusions and stated that TR PWROG-18068 is currently planned to be submitted in March of 2021.

In addition, there was an opportunity for the public to provide comments and ask questions. No public comments were received, and the meeting was concluded.

Docket No. 99902037

Enclosure: List of Meeting Attendees

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ADAMS Accession Nos.
ML21197A206 (Package)
ML20272A297 (Notice)
ML20294A116 (Slides)
ML21197A201 (Summary)

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DATE	07/19/2021	07/19/2021	07/22/2021	08/03/2021

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