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

January 4, 2022

LICENSEE: Tennessee Valley Authority

FACILITY: Watts Bar Nuclear Plant, Unit 2

SUBJECT: SUMMARY OF DECEMBER 14, 2021, TELECONFERENCE WITH TENNESSEE VALLEY AUTHORITY REGARDING A PROPOSED CHANGE TO THE CAPSULE WITHDRAWAL SCHEDULE FOR WATTS BAR NUCLEAR PLANT, UNIT 2 (EPID L-2021-LRM-0116)

On December 14, 2021, the U.S. Nuclear Regulatory Commission (NRC) staff conducted an observation (i.e., public) teleconference with representatives of Tennessee Valley Authority (TVA). The purpose of the teleconference was for TVA to discuss a proposed request for Watts Bar Nuclear Plant (Watts Bar), Unit 2 to revise the capsule withdrawal schedule for Capsule W.

The meeting notice and agenda, dated November 30, 2021, are available at Agencywide Documents Access and Management System (ADAMS) Accession No. ML21335A021. TVA's presentation slides for the meeting are available at ADAMS Accession No. ML21343A028. A list of participants is enclosed.

As TVA explained, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements," Paragraph III.B.3, it plans to request NRC approval of a revision to the reactor vessel surveillance capsule removal schedule for Watts Bar, Unit 2. The current Unit 2 capsule withdrawal schedule is described in Table 4.0-1 of the Unit 2 Pressure Temperature Limits Report (PTLR), which TVA shared during the meeting as shown on Slide 5 of the presentation slides and can also be found in the latest PTLR submittal to the NRC at ADAMS Accession No. ML20351A248.

TVA stated that the proposed changes will revise the withdraw schedule for reactor vessel surveillance capsule W, include the latest data regarding lead (pronounced "leed") factors, revise the effective full power years (EFPY), and expected neutron fluence, as well as delete the "end of cycle 5" from the Capsule W schedule line to allow planning of capsule withdrawal based on parameters that are directly applicable to American Society for Testing and Materials (ASTM) E-185-82, "Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels," which is the applicable standard for Watts Bar, Unit 2. The proposed changes that TVA shared are shown on Slide 7 of the presentation slides. TVA stated that the proposed changes are needed to support the Watts Bar, Unit 2, Cycle 5 refueling outage (U2R5), which is currently scheduled for fall 2023.

TVA stated that the current capsule removal schedule is based on WCAP-18191-NP, Revision 0, "Watts Bar Unit 2 Heatup and Cooldown Limit Curves for Normal Operation and Supplemental Reactor Vessel Integrity Evaluations," (ADAMS Accession No. ML17289A327) and ASTM E-185-82. The proposed revisions to the schedule are based WCAP-18518-NP,

Revision 0, “Analysis of Capsule U from the Watts Bar Unit 2 Reactor Vessel Radiation Surveillance Program,” (ADAMS Accession No. ML20107F717).

TVA noted that Table 1 to ASTM E-185-82 lists the recommended number of surveillance capsules and their withdrawal schedule based on the anticipated shift in the reference nil-ductility transition temperature (ΔRT_{NDT}) at the end of life (EOL). For Watts Bar, Unit 2, because the ΔRT_{NDT} at EOL (i.e., 32 EFPY) for all vessel forgings and welds will be less than 100°F, only three surveillance capsules are required to be withdrawn. Based on Table 1 to ASTM E185-82, the limiting criterion for Watts Bar, Unit 2 is when the fluence will correspond to the approximate EOL fluence at the reactor vessel inner wall location, which TVA has calculated to be 1.94 x 10^{19} neutrons per square centimeter and is projected to occur at 7 EFPY (see ADAMS Accession No. ML20107F717, Table 7-1).

TVA also plans to identify Capsule Z as a backup to Capsule W should it be unable to withdraw Capsule W. TVA explained that Capsule Z is radiologically equivalent to Capsule W (e.g., the estimated fluence of the capsules is the same), and the lead factors are the same when compared in the same outage.

TVA plans to submit the schedule change request by the end of January 2022 and request approval within 12 months of the submittal.

No comments or public meeting feedback were received. No regulatory decisions were made at this meeting.

Please direct any inquiries to me at 301-415-1627 or by e-mail to Kimberly.Green@nrc.gov.

/RA/

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Docket Nos. 50-391

Enclosure:
List of Participants

cc: Listserv

LIST OF PARTICIPANTS

DECEMBER 14, 2021, TELECONFERENCE WITH TENNESSEE VALLEY AUTHORITY

REGARDING WATTS BAR NUCLEAR PLANT, UNIT 2

PROPOSED CHANGE TO THE CAPSULE WITHDRAWAL SCHEDULE

Name	**Organization**
Kim Green	U.S. Nuclear Regulatory Commission (NRC)
Angie Buford	NRC
On Yee	NRC
Carol Moyer	NRC
Perry Buckberg	NRC
Russ Wells	Tennessee Valley Authority (TVA)
Charles Menke	TVA
Dean Baker	TVA
Kasey Decker	TVA
Chris Kelin	TVA

Enclosure

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DATE	12/15/2021	1/4/2022	1/4/2022	1/4/2022

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