



UNITED STATES
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August 23, 2017

Mr. Andrew McGehee
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Mr. Tim Hanley
BWRVIP Chairman
Exelon Corporation
P.O. Box 805398
Chicago, IL 60680-5398

SUBJECT: COOPER NUCLEAR STATION – REQUEST FOR EXTENSION OF DATE TO
SUBMIT REACTOR VESSEL SURVEILLANCE CAPSULE SUMMARY
TECHNICAL REPORT (CAC NO. MF9133)

Dear Messrs. McGehee and Hanley:

By letter dated December 7, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17026A401), the Boiling Water Reactor (BWR) Vessel and Internals Project (BWRVIP) requested an extension of the reporting date for the results from the testing of the Cooper Nuclear Station (Cooper) 120-degree surveillance capsule, as part of the BWR Integrated Surveillance Program, in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements." The Cooper 120-degree surveillance capsule was withdrawn from the reactor on October 25, 2016. The requested extension would revise the submittal date from October 25, 2017, to July 31, 2018.

Electric Power Research Institute (EPRI) Report, "BWRVIP-86NP, Revision 1-A: BWR Vessel and Internals Project, Updated BWR Integrated Surveillance Program (ISP) Implementation Plan" (ADAMS Accession No. ML13176A097), provides guidance for the establishment of an acceptable alternative to all existing BWR plant-specific reactor pressure vessel surveillance programs for the purpose of maintaining compliance with the requirements of Appendix H to 10 CFR Part 50 through the end of the current facility 40-year and/or 60-year extended operating license. As indicated in the U.S. Nuclear Regulatory Commission (NRC) safety evaluation (SE), dated February 1, 2002 (ADAMS Accession No. ML020380691), which was incorporated into BWRVIP-86-A "BWR Vessel and Internals Project, Updated BWR Integrated Surveillance Program (ISP) Implementation Program" (ADAMS Accession No. ML023190487):

The BWRVIP shall submit any changes regarding the ISP testing matrix, withdrawal schedule, or testing and reporting of individual capsule results to the NRC for review and approval prior to implementing these changes. Further, the BWRVIP will perform testing and submit surveillance capsule reports to the NRC in accordance with the provisions found in Appendix H to 10 CFR Part 50 on behalf of BWR licensees.

Nuclear power plant licensees are required by Appendix H to 10 CFR Part 50 to implement reactor vessel (RV) material surveillance programs to “monitor changes in the fracture toughness properties of ferritic materials in the reactor vessel beltline region . . . which result from exposure of these materials to neutron irradiation and the thermal environment.” Two specific alternatives are provided with regard to the design of a facility’s RV surveillance program that may be used to address the requirements of Appendix H to 10 CFR Part 50. The first alternative is the implementation of a plant-specific RV surveillance program consistent with the requirements of the American Society for Testing and Materials (ASTM) Standard Practice E-185, “Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels.” In the design of a plant-specific RV surveillance program, a licensee may use the edition of ASTM Standard Practice E 185 that was current on the issue date of the American Society of Mechanical Engineers Code to which the reactor vessel was purchased, or later editions through the 1982 edition. The second alternative provided in Appendix H to 10 CFR Part 50 is the implementation of an ISP. An ISP is defined in Appendix H to 10 CFR Part 50 as occurring when, “the representative materials chosen for surveillance for a reactor are irradiated in one or more other reactors that have similar design and operating features.” As noted above, the NRC staff approved the BWRVIP ISP in an SE that was provided to the BWRVIP by letter dated February 1, 2002.

By letter dated December 31, 2002 (ADAMS Accession No. ML030080070), Nebraska Public Power District (NPPD), the licensee for Cooper, submitted a request for NRC review and approval of a license amendment to modify the basis for its compliance with the requirements of Appendix H to 10 CFR Part 50. In its license amendment submittal, NPPD requested approval to implement the BWRVIP ISP as the basis for demonstrating Cooper’s compliance with the requirements of Appendix H to 10 CFR Part 50. In the SE dated October 31, 2003 (ADAMS Accession No. ML033090607), the NRC issued an amendment allowing Cooper to modify the basis for the compliance with the requirements of 10 CFR Part 50, Appendix H by implementing the BWRVIP ISP.

As part of an integrated surveillance program, the BWR ISP capsule reports go through the BWRVIP’s committee review process. This adds a minimum of 2 to 3 months to the timeline for the completion and publication of the surveillance capsule summary technical report. The Cooper 120-degree surveillance capsule was withdrawn from the reactor on October 25, 2016. The BWRVIP ISP withdrawal schedule, documented in BWRVIP-86A, Revision 1, originally planned the withdrawal of the Cooper 120-degree surveillance capsule in 2017. With the change of refueling schedules to 2-year cycles, the original withdrawal date no longer coincided with the scheduled refueling outage. The BWRVIP ISP program allowed plants to modify the surveillance capsule withdrawal schedule by plus or minus 1 year to accommodate plant operating schedules. Therefore, the withdrawal of the Cooper 120-degree surveillance capsule was planned for the fall 2018 refueling outage. However, during the fall 2016 refueling outage, the licensee determined that the spring in the Cooper 120-degree surveillance capsule had relaxed and attempts to reposition the surveillance capsule holder were not successful. Therefore, due to concerns that the surveillance capsule holder could disengage from the vessel bracket entirely, the Cooper 120-degree surveillance capsule was withdrawn during the fall 2016 refueling outage. This unplanned early withdrawal did not allow time for the BWRVIP to have contracts in place for the testing and analysis of the surveillance capsule at the time of the surveillance capsule withdrawal and therefore, additional time was necessary to secure these contracts.

The December 7, 2016, submittal stated, in part, that “Cooper is estimated to reach 32 EFPY [Effective Full Power Years] on January 15, 2017, and has recently implemented 54 EFPY P-T

[pressure-temperature] curves. Therefore, it is unlikely that data from the Cooper 120° [120-degree] surveillance capsule could impact the Cooper P-T limit curves." P-T curves define the pressure and temperature operating conditions that must be maintained to ensure adequate margins of safety exist on material fracture toughness. The methodology used to determine the P-T limit curves must comply with the specific requirements of Appendices G and H to 10 CFR Part 50, and must be documented in an NRC-approved topical report or in a plant-specific submittal, and be incorporated by reference into the technical specifications.

Appendix H, Section IV.A of 10 CFR Part 50 states that the summary technical report must be submitted within 1 year of the date of capsule withdrawal, unless an extension is granted. Section IV.C (report of test results) to 10 CFR 50, Appendix H, states that, "If a change in the Technical Specifications is required, either in the pressure-temperature limits or in the operating procedures required to meet the limits, the expected date for submittal of the revised Technical Specifications must be provided with the report." Based on the need for additional time to plan and secure contracts for testing and analysis of the surveillance capsule, and to account for additional BWRVIP ISP review processes, the request to extend the summary technical report by approximately 9 additional months is reasonable.

Based on the above evaluation, the NRC staff determined that extending the submittal date of the summary technical report from October 25, 2017, to July 31, 2018, is in accordance with 10 CFR Part 50, Appendix H because the extension of the reporting of the results from this ISP capsule will not change the overall effectiveness of the ISP. Accordingly, the extension for Cooper until July 31, 2018, is acceptable.

If you have any further questions, please contact Tom Wengert at (301) 415-4037 or via e-mail at Thomas.Wengert@nrc.gov.

Sincerely,



Robert J. Pascarelli, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-298

cc: Mr. John A. Dent, Jr.
Vice President-Nuclear and CNO
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SUBJECT: COOPER NUCLEAR STATION – REQUEST FOR EXTENSION OF DATE TO
SUBMIT REACTOR VESSEL SURVEILLANCE CAPSULE SUMMARY
TECHNICAL REPORT (CAC NO. MF9133) DATED AUGUST 23, 2017

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*by memorandum

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DATE	08/23/2017	08/17/2017	07/27/2017	08/23/2017

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