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

April 12, 2016

Mr. Andrew McGehee
BWRVIP Program Manager
Electric Power Research Institute
3420 Hillview Avenue
Palo Alto, CA 94304-1395

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

SUBJECT: HOPE CREEK GENERATING STATION - EXTENSION OF SCHEDULE FOR REPORTING SURVEILLANCE CAPSULE TEST RESULTS UNDER THE INTEGRATED SURVEILLANCE PROGRAM (TAC NO. MF6759) (EPRI LETTER 2015-050)

Dear Messrs. McGehee and Hanley:

By letter dated May 11, 2015 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15265A522), the Boiling Water Reactor Vessel and Internals Project (BWRVIP) requested an extension of the reporting date for the results from the testing of the Hope Creek Generating Station (HCGS) 120° surveillance capsule as part of the Boiling Water Reactor (BWR) Integrated Surveillance Program (ISP) in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix H, "Reactor Vessel Material Surveillance Program Requirements." The HCGS 120° surveillance capsule was withdrawn from the reactor on April 18, 2015, in accordance with the BWRVIP ISP withdrawal schedule documented in BWRVIP-86A, Revision 1. The request for extension would revise the submittal date from April 18, 2016, to October 31, 2016, to accommodate the BWRVIP's committee review and approval process.

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, which 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 E185, "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 E185 that was current on the issue date of the American Society of Mechanical Engineers Code to which the RV 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 indicated above, the NRC staff approved the BWRVIP ISP in the SE dated February 1, 2002. By letter dated December 23, 2002 (ADAMS Accession No. ML023650558), PSEG Nuclear LLC, the licensee for HCGS, 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, PSEG Nuclear LLC requested approval to implement the BWRVIP ISP as the basis for demonstrating the compliance of HCGS with the requirements of Appendix H to 10 CFR Part 50. In the SE dated July 23, 2004 (ADAMS Accession No. ML033230591), the NRC staff issued an amendment allowing HCGS to modify the basis for its compliance with the requirements of 10 CFR Part 50, Appendix H, by implementing the BWRVIP ISP as the basis for demonstrating compliance with the requirements of 10 CFR Part 50, Appendix H.

The HCGS 120° surveillance capsule was withdrawn from the reactor on April 18, 2015, in accordance with the BWRVIP ISP withdrawal schedule documented in BWRVIP-86A, Revision 1. Your May 11, 2015, letter stated that as part of an integrated surveillance program, the BWR ISP capsule reports go through the BWRVIP's committee review process and that this process adds a minimum of 2 to 3 months to the timeline for the completion and publication of the surveillance capsule summary technical report.

The submittal further stated that, "The plant's current Effective Full Power Years (EFPY) is 24.1 and the plant's approved P-T [pressure-temperature] curves are valid for 32 EFPY of operation." P-T curves that define the operating pressure and temperature conditions that must be maintained to ensure adequate margins of safety exist on material fracture toughness.

Appendix G, "Fracture Toughness Requirements," Section I, "Introduction and Scope," of 10 CFR Part 50 states, in part, the following:

> This appendix specifies fracture toughness requirements for ferritic materials of pressure-retaining components of the reactor coolant pressure boundary of light water nuclear power reactors to provide adequate margins of safety during any condition of normal operation, including anticipated operational occurrences and system hydrostatic tests, to which the pressure boundary may be subjected over its service lifetime.

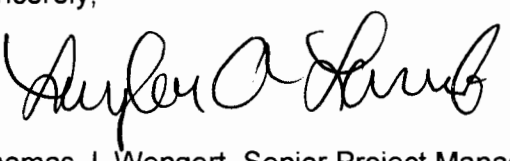
The methodology used to determine the P-T limit curves must comply with the specific requirements of Appendices G and H to 10 CFR Part 50, be documented in an NRC-approved topical report or in a plant-specific submittal, and be incorporated by reference into the technical specifications.

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 scheduling and additional BWRVIP ISP review processes, the request to extend the summary technical report by approximately 6 additional months is reasonable. Based on the above, the NRC staff has determined that extending the submittal of the summary technical report for the HCGS 120° surveillance capsule from April 18, 2016, to October 31, 2016, 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 and will not affect the continued safe operation of the BWR fleet. Therefore, the requested extension is granted.

Should you have further questions regarding implementation of the ISP, please contact Joseph Holonich at 301-415-7297 or Joseph.Holonich@nrc.gov.

Sincerely,



for Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-354

cc: Mr. Andrew Odell
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Should you have further questions regarding implementation of the ISP, please contact Joseph Holonich at 301-415-7297 or Joseph.Holonich@nrc.gov.

Sincerely,

/RA/ Taylor A. Lamb for

Thomas J. Wengert, Senior Project Manager
Plant Licensing Branch I-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

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ADAMS Accession No.: ML16082A265 *by memorandum

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