

2016-135 _____ BWR Vessel & Internals Project (BWRVIP)

December 7, 2016

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

Attention: Thomas J. Wengert

Subject: Cooper Surveillance Capsule Test Results Report

References:

1. BWRVIP Letter 2016-134, "Project No. 704 – Withdrawal of the Cooper 120° Surveillance Capsule," December 7, 2016.
2. BWRVIP-86, Revision 1-A: BWR Vessel and Internals Project, Updated BWR Integrated Surveillance Program (ISP) Implementation Plan, EPRI, Palo Alto, CA: 2012. 1025144.
3. NRC Information Notice 2016-02: Improper Seating of Reactor Vessel Surveillance Capsules, January 15, 2016. ADAMS Accession Number ML15278A472.

The purpose of this letter is to request an extension of the date to submit the Cooper Nuclear Station 120° reactor pressure vessel surveillance capsule summary technical report to the NRC in accordance with 10 CFR 50 Appendix H.IV.A.

The Cooper 120° capsule was withdrawn from the reactor on October 25, 2016 [1]. Cooper is a host plant in the Boiling Water Reactor Vessel and Internals Project (BWRVIP) Integrated Surveillance Program (ISP) as defined in BWRVIP-86, Revision 1-A [2]. As identified in the ISP test schedule in Table 4-5 of BWRVIP-86, Revision 1-A, the next Cooper surveillance capsule was originally planned to be removed in 2017. After switching to two-year refueling cycles, the 2017 withdrawal date did not align with a scheduled outage. As stated in Section 4.2 of BWRVIP-86, the test schedule can be modified by plus or minus one year to accommodate plant operating schedules. As such, the withdrawal of the Cooper 120° surveillance capsule was planned for the Fall 2018 refueling outage to align with a scheduled outage and remain in compliance with BWRVIP-86, Revision 1-A.

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During Cooper's Fall 2016 refueling outage, it was discovered that the spring in the 120° surveillance capsule holder had relaxed, resulting in less than optimal engagement between the surveillance capsule holder and the lower vessel bracket. Attempts were made to reengage the capsule holder fully into the vessel bracket, but the capsule returned to the relaxed position. Inspection video footage from the previous outage was reviewed and the capsule was determined to be fully engaged with no wear on the lower bracket at that time. It was concluded that the spring within the capsule holder had relaxed during the subsequent operating cycle. As a result, a concern arose that the capsule holder could become disengaged from the lower vessel bracket during the following operating cycle. A disengaged capsule holder could cause the capsule to fall within the annulus between the reactor vessel and the core shroud causing damage to internals components and/or the generation of loose parts. Recent operating experience at another nuclear station [3], where improper engagement of a surveillance capsule resulted in the loss of surveillance capsules and generation of loose parts, heightened this concern. Furthermore, even if the capsule remained intact after becoming disengaged, it would not be possible to accurately determine fluence exposure for the prior cycle. Therefore, a joint decision between Cooper and the BWRVIP was made to withdraw the capsule one cycle earlier than previously planned.

As assigned by the ISP Test Matrix, the Cooper capsule provides the representative surveillance plate for Cooper and Oyster Creek, but it is a heat-specific match to the Cooper target material only. The capsule provides the representative surveillance weld for Cooper and Hatch Unit 1 but is not a heat-specific match to either target welds. Therefore, direct utilization of the Cooper capsule surveillance data per Regulatory Guide 1.99 Rev. 2 Regulatory Position 2.1 or 2.2 is possible only for evaluation of the Cooper plate; as a result, the data has the potential to impact the Cooper pressure-temperature (P-T) limit curves only. Cooper is estimated to reach 32 EFPY on January 15, 2017 and has recently implemented 54 EFPY P-T limit curves. Therefore, it is unlikely that data from the Cooper 120° surveillance capsule could impact the Cooper P-T limit curves.

Lastly, for the past several capsules tested under the ISP, the BWRVIP has submitted requests to extend the 10 CFR 50 Appendix H.IV.A requirement to provide the NRC capsule reports within one year of the capsule withdrawal. The length of the extension requested has been approximately six months. The need for these extensions can largely be attributed to the BWRVIP's committee review process that adds 2 to 3 months to completion and publication of the capsule report. The need for the BWRVIP to contract multiple vendors to perform the capsule testing, fluence evaluation, and report preparation is also a significant contributing factor. For all previously tested ISP capsules, contracts were in place with the vendors prior to the withdrawal of the capsule. In the case of the Cooper 120° surveillance capsule, withdrawal of the capsule was not planned until 2018 and contracts were not in place prior to the capsule withdrawal. As such, additional time is needed to secure contracts and begin the testing efforts. The final report will be completed and transmitted to the NRC no later than July 31, 2018.

If you have any questions on this subject, please contact Drew Odell (Exelon Corp., BWRVIP Integration Committee Technical Chairman) by email at andrew.odell@exeloncorp.com or by telephone at 610.765.5483.

Sincerely,

A handwritten signature in dark ink, appearing to read "Tim Hanley". The signature is fluid and cursive, with the first name "Tim" and last name "Hanley" clearly distinguishable.

Tim Hanley
Exelon Corporation
Chairman, BWR Vessel and Internals Project

c: D. Rudland, NRC-NRR
D. Odell, Exelon Corp.
S. Richter, Energy Northwest
T. McClure, NPPD
R. Carter, EPRI
A. McGehee, EPRI
C. Wirtz, EPRI
N. Palm, EPRI