

Guzman, Richard

From: Guzman, Richard
Sent: Tuesday, May 03, 2016 4:28 PM
To: Wanda D Craft (Generation - 6)
Subject: Re: MPS3 RV Surveillance Capsule Withdrawal Schedule revision

Wanda,

In response to your request for NRC approval of the revised capsule withdrawal schedule described in your April 27, 2016, e-mail, the NRC staff has completed its review and has concluded that the reactor vessel material surveillance capsule withdrawal schedule for Millstone Power Station, Unit 3 continues to satisfy the requirements of Appendix H to 10 CFR Part 50 and the recommendations of the GALL Report as they relate to the period of extended operation. Therefore, the proposed change in location for the reinstallation of Capsule Y from the 241° location to the 61° location is acceptable. A summary of the staff's technical evaluation is provided below. This e-mail officially transmits NRC staff approval of the licensee's April 27, 2016, request. It will be added to ADAMS as an official agency record.

Please contact me if you have any questions.

Rich Guzman
Sr. Project Manager
NRR/DORL
US NRC
301-415-1030

Summary of NRC staff evaluation

In the NRC letter with enclosed safety evaluation (SE) dated March 15, 2016, the NRC staff approved a revised reactor vessel material surveillance capsule withdrawal schedule for the Millstone Power Station, Unit 3 (MPS3). Capsule Y was withdrawn after 13.8 effective full power years (EFPY) and placed into storage in the spent fuel pool after accruing a neutron fluence of 2.98×10^{19} n/cm². The withdrawal schedule was changed to allow the reinstallation of standby Capsule Y into the reactor vessel at the 241° location during the Spring 2016 refueling outage. During the MPS3 spring 2016 outage, Dominion Nuclear Connecticut, Inc. (the licensee) notified the NRC staff that the 241° location was obstructed, and therefore, the licensee proposed reinstallation of Capsule Y instead at the 61° location. The 61° and 241° locations have the same lead factor of 3.98. No other changes were proposed to the withdrawal schedule previously approved in the March 15, 2016, NRC SE.

Appendix H to 10 CFR Part 50 includes the requirement of dosimetry monitoring as part of the reactor vessel material surveillance program. In addition, for the period of extended operation for license renewal, NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," Aging Management Program, XI.M31 Reactor Vessel Surveillance, states that programs without in-vessel capsules use alternative dosimetry to monitor neutron fluence during the period of extended operation, as part of the aging management program for reactor vessel

neutron embrittlement. The July 2, 2015, submittal stated, "Concurrent reinsertion of Capsule Y will maintain continuous reactor vessel fluence monitoring as required by 10 CFR 50 Appendix H." Since the lead factors are identical in the 61° and 241° locations, the NRC staff determined that the neutron fluence exposures would be essentially identical at both locations. Based on the information in the References listed below and the staff assessment that Capsule Y will experience sufficiently similar neutron fluence conditions at the 61° and 241° locations, the NRC staff concludes that the reactor vessel material surveillance capsule withdrawal schedule for MPS3 continues to satisfy the requirements of Appendix H to 10 CFR Part 50 and the recommendations of the GALL Report as they relate to the period of extended operation. Therefore, the proposed change in location for the reinstallation of Capsule Y from the 241° location to the 61° location is acceptable.

References:

1. Letter dated July 2, 2015 (ADAMS Accession No. ML15194A061), supplemented by letter dated January 28, 2016 (ADAMS Accession No. ML16034A215) from Dominion Nuclear Connecticut, Inc.
2. Safety Evaluation dated March 15, 2016 (ADAMS Accession No. ML16067A234)
3. E-mail from W. Craft to R. Guzman dated April 27, 2016

From: "Wanda D Craft (Generation - 6)" <wanda.d.craft@dom.com>
Subject: [External_Sender] MPS3 RV Surveillance Capsule Withdrawal Schedule revision
Date: 27 April 2016 16:08
To: "Guzman, Richard" <Richard.Guzman@nrc.gov>

Rich,

In letters dated July 2, 2015 and January 28, 2016, DNC requested NRC review and approval of a revision to the surveillance capsule withdrawal schedule for MPS3. The NRC approved the revised withdrawal schedule in a letter dated March 15, 2016.

DNC planned to reinstall standby Capsule Y into the reactor vessel from the spent fuel pool during the spring 2016 refueling outage. Capsule Y was scheduled for reinsertion at the 241° location but could not be reinserted there due to the obstruction caused by the lift rig for the upper internals. This obstruction limited travel of the refuel bridge and therefore, restricted access to the 241° specimen guides. DNC proposes to revise the capsule withdrawal schedule for reinsertion of Capsule Y at the 61° location, which has the same lead factor as the 241° location. No other changes are proposed to the withdrawal schedule previously approved in the March 15, 2016 NRC safety evaluation.

The proposed revision to the reactor vessel surveillance capsule withdrawal schedule is shown below.

Proposed revisions to the capsule withdrawal schedule are shown with additions in bold, italicized text and deletions are shown with strikethrough.

Proposed Millstone Unit 3 Reactor Vessel Surveillance Capsule Withdrawal Schedule

CAPSULE	LOCATION	LEAD FACTOR ^(a)	REMOVAL / INSTALLATION TIME (EFPY) ^(b)	FLUENCE (n/cm ² , E>1.0MeV) ^(a)
U	58.5°	4.06	1.3	4.00 x 10 ^{18(c)}
X	238.5°	4.35	8.0	1.98 x 10 ^{19(c)}
W	121.5°	4.22	13.8	3.16 x 10 ^{19(c, d)}
Y ^{(e)(f)}	241°	3.98	13.8	Footnote (i)
Y^(f)	61°	3.98		Footnote (i)
V ^(e)	61°	3.98	Storage	
Z ^(g)	301.5°	4.22	23.4	5.37x 10 ^{19(h)}

- a. Updated in Capsule W dosimetry analysis.
- b. Effective Full Power Years (EFPY) from plant startup.
- c. Plant specific evaluation.
- d. This fluence is not less than once or greater than twice the peak end of license fluence, and is approximately equal to the peak vessel fluence at 63 EFPY.
- e. Capsules Y and V were withdrawn after 13.8 EFPY (EOC 10) and placed into storage after accruing 2.98 x 10¹⁹ n/cm² fluence.
- f. Capsule Y was reinserted into ~~its original location (241°)~~ **61°** at EOC 17 (approximately 23.4 EFPY).
- g. Capsule Z was withdrawn at 23.4 EFPY (EOC 17) after accruing approximately 5.37 x 10¹⁹ n/cm² fluence. Dosimetry analysis was performed and the test specimens placed into vendor storage for future testing.
- h. This projected fluence is greater than once and less than twice the projected 72 EFPY and 90 EFPY peak vessel fluence.
- i. Capsule Y is installed for fluence monitoring during the operating license in accordance with ASTM E 185-82.

Thanks for your review and we are looking forward to discussing this with you in a call tomorrow. We will need NRC approval of the revised capsule withdrawal schedule prior to entering Mode 2, which is currently expected to occur on May 9th. If you have any questions, please let me know. Thanks.

Wanda D. Craft

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