NRR-PMDAPEm Resource

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Sent: Friday, November 28, 2014 3:09 PM
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Cc: 'david.sommers@dom.com' (david.sommers@dom.com); Tom Shaub; Pascarelli, Robert; Biro, Mihaela; Farzam, Farhad; Shaikh, Samina; West, Khadijah
Subject: North Anna Units 1 and 2, Request for Information: TECHNICAL SPECIFICATION CHANGE PROPOSING PERMANENT FIFTEEN-YEAR TYPE A TEST INTERVAL
Attachments: North Anna ILRT RAI.docx

By letter dated June 30, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14183B318), Virginia Electric and Power Company (Dominion) requested an amendment to Operating License Numbers NPF-4 and NPF-7 in the form of changes to the Technical Specifications (TSs) for North Anna Power Station Units 1 and 2, respectively. The license amendment request (LAR) proposes a change to TS 5.5.15, "Containment Leakage Rate Testing Program," by replacing the reference to Regulatory Guide (RG) 1.163 with a reference to Nuclear Energy Institute (NEI) topical report NEI 94-01, Revision 3-A, as the implementation document used to develop the North Anna performance-based leakage testing program in accordance with Option B of 10 CFR 50, Appendix J. In order to complete its safety evaluation the NRC staff has the comments as listed in the attachment and requests for the additional information .

In order to meet the due dates, please respond to the RAIs as provided in the attached file to this e-mail by January 16, 2015. If you have any questions please contact me at 301-415-2597

Thank you

V. Sreenivas, Ph.D.,

PM/North Anna Power Station

LPL2-1, NRR

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REQUEST FOR ADDITIONAL INFORMATION

TECHNICAL SPECIFICATION CHANGE PROPOSING PERMANENT FIFTEEN-YEAR TYPE A TEST INTERVAL

DOCKET NUMBERS 50-338 AND 50-339

By letter dated June 30, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14183B318), Virginia Electric and Power Company (Dominion) requested an amendment to Operating License Numbers NPF-4 and NPF-7 in the form of changes to the Technical Specifications (TSs) for North Anna Power Station Units 1 and 2, respectively. The license amendment request (LAR) proposes a change to TS 5.5.15, "Containment Leakage Rate Testing Program," by replacing the reference to Regulatory Guide (RG) 1.163 with a reference to Nuclear Energy Institute (NEI) topical report NEI 94-01, Revision 3-A, as the implementation document used to develop the North Anna performance-based leakage testing program in accordance with Option B of 10 CFR 50, Appendix J. In order to complete its safety evaluation the NRC staff has the following comments and requests the following additional information. In order to meet the due dates, please respond to these RAIs by January 16, 2015.

Mechanical and Civil Engineering Branch (EMCB):

RAI-1.
It is stated in Section 4.4.1 "IWE Examinations" of the LAR that the Interval 2, Period 2 of the NAPS Unit 2 Containment IWE in-service inspection is scheduled to be completed by October 2014. Please discuss the highlight of findings from this recent IWE inspection and any corrective actions taken to disposition the findings.

RAI-2.
It is stated in the LAR and the current NAPS TS that the next Unit 2 integrated leak rate test (ILRT), Type A test, is currently due no later than October 9, 2014.

Please provide the following:

a. The results of as-found and as-left leak rate for the NAPS Unit 2 ILRT performed in October 2014 and a comparison with the corresponding leak rate acceptance limit.

b. The results of visual inspection of containment concrete exterior surface areas, completed prior to the NAPS Unit 2 ILRT performed in October 2014.

RAI-3.
Please provide a summary of any degradation identified during inspections of the NAPS Unit 1 and Unit 2 containment liner at the interface of containment floor slab and the containment wall liner, including moisture barrier (if any). Please describe the degradation condition, corrective actions, and additional monitoring program implemented to manage the identified condition.

RAI-4.
It is stated in Section 4.0 of the LAR that although not a specific line item in the North Anna IWE program, accessible leak chase channel plugs and caps are inspected during the general visual examination completed in accordance with IWE program.

Relative to the NRC Information Notice 2014-07, "Degradation of Leak-Chase Channel Systems for Floor Welds of Metal Containment Shell and Concrete Containment Metallic Liner," discuss the NAPS Units 1 and 2 operating experience, inspection results and any corrective actions taken.

RAI-5.
Please provide information relative to findings (if any) and actions taken where existence of or potential for degraded conditions in inaccessible areas of the NAPS Units 1 and 2 containment structure and steel liner were evaluated based on conditions found in accessible areas as required by 10CFR 50.55a(b)(2)(ix)(A) and 10CFR 50.55a(b)(2)(viii)(E).

Please note that in response to the NRC staff request for additional information, in support of the one-time extension of the NAPS Unit 2 ILRT until 2014, Dominion, in its letter dated April 3, 2008, has already provided information relative to discovery of a blister in the NAPS Unit 2 containment liner plate protective coating that prompted an examination of the liner plate which revealed the presence of a through-thickness hole. Therefore, information relative to this finding does not need to be resubmitted.

RAI-6.
Section 4.0 of the LAR, Dominion response to limitation/condition 3 of NRC staff safety evaluation (SE) for NEI 94-01, Revision 2, dated June 25, 2008, states that there are no primary containment surface areas that require augmented examinations in accordance with American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Section XI, IWE-1240. Section 4.4.1 of the LAR states that for North Anna Unit 2, Interval 2, Period 1, one area of the liner was observed to have exhibited some blistering and although no liner degradation was observed during the inspection prior to recoating, this area was considered as Category E-C (Item E4.11) to be reexamined during the next Unit 2 refueling outage. Please provide further information regarding the above condition and clarify whether there are any NAPS Unit 2 primary containment surface areas that require augmented examinations in accordance with ASME Code Section XI, IWE-1240.

RAI-7.
Please provide the following information:

a. Percent of the total number of Type B tested components that are on 120-month extended performance-based test interval.

b. Percent of the total number of Type C tested components that are on 60-month extended performance-based test interval.

PRA Licensing Branch (APLA):

RAI-1.
In the safety evaluation report for Electric Power Research Institute (EPRI) Technical Report (TR) 1009325, Revision 2, "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals," the Nuclear Regulatory Commission (NRC) staff, in part, stated that for licensee

requests for a permanent extension of the integrated leak rate testing (ILRT) surveillance interval to 15 years "[c]apability category I of ASME RA-Sa-2003 shall be applied as the standard, since approximate values of CDF and LERF and their distribution among release categories are sufficient for use in the EPRI methodology."

Section 4.6.2 of Attachment 1 to the license amendment request (LAR) states that the 2013 Probabilistic Risk Assessment (PRA) full scope peer review found that 92 percent of the supporting requirements (SRs) were met with Capability Category I/II or greater. Table B.1 of Attachment 5 to the LAR provides the list of findings from the 2013 peer review and provides an assessment of the impact on the ILRT extension application.

a. Provide a list of all SRs from Table B.1 of Attachment 5 to the LAR which did not meet Capability Category I requirements of the PRA Standard endorsed by Revision 2 of Regulatory Guide (RG) 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." Explain why not meeting Capability Category I has no impact on the ILRT extension application.

b. Fact and observation (F&O) LE-G1-01 in Table B.1 of Attachment 5 to the LAR appears to indicate that the peer review team had difficulty in completely reviewing the Level 2/LERF analysis. The finding states: "There is no adequate roadmap that facilitates peer review of the Level 2/LERF documentation." The finding further states that "[t]here are several dated self-assessment documents. For LE, about one-third of the SRs do not have any discussion of how the SR is met and where the documentation can be found. Moreover, because of the conversion of the Volume numbers (e.g. LE.2 to LE.1), there is additional confusion added for LE. Many of the referenced sections in the self-assessment (e.g., Section 5.4.1 of LE.1 (old LE.2)) appear to no longer exist. Finally, unlike the other technical elements that have completely revised the analysis, the Level 2 relies significantly on historical documents including the 20 year old IPE, SM-1243 and SM-1464."

   If the LAR provides the summary of the peer review finding LE-G1-01, please provide the complete peer review feedback for F&O LE-G1-01.

c. For F&Os LE-G1-01, IE-C3-01, AS-B6-01, AS-C1-01, DA-D8-01, DA-D8-02, and SY-C1-01 the impact assessment provided in the LAR states that there is no impact on risk because "this is primarily a documentation enhancement." Explain how it was determined that these gaps are limited only to documentation and have no impact on the risk results, or alternatively explain why not meeting Capability Category I will have no impact on the ILRT extension application.

RAI-2.
Section 4.4 of the LAR uses the Calvert Cliffs Nuclear Power Plant methodology in evaluating the impact of liner corrosion on the extension of ILRT testing intervals. This assessment was based on two observed corrosion events at North Anna Power Station, Unit 2 and Brunswick Steam Electric Plant, Unit 2. Additionally, the LAR references a data search performed by Peach Bottom Atomic Power Station in 2010, reviewing more recent liner corrosion events. If there have been additional instances of liner corrosion that could be relevant to this assessment, provide an updated list of observed corrosion events relevant to North Anna

containment, and an evaluation of the impact on risk results when all relevant corrosion events are included in the risk assessment.

RAI-3.
Section 4.2.6 of EPRI TR-1009325, Revision 2-A states that "[p]lants that rely on containment overpressure for net positive suction head (NPSH) for emergency core cooling system (ECCS) injection for certain accident sequences may experience an increase in CDF", therefore requiring a risk assessment. The fourth condition in the safety evaluation report for EPRI TR-1009325, Revision 2 states that "[a] LAR is required in instances where containment over-pressure is relied upon for ECCS performance." Section 5.8 of Attachment 4 to the LAR states that the design basis calculations credit containment overpressure to satisfy net positive suction head (NPSH) requirements for recirculation spray (RS) and low head safety injection (LHSI) pumps during loss of coolant accidents. The MAAP analyses discussed in Attachment 4 of the LAR are intended to demonstrate that adequate NPSH is available assuming an increased containment leak rate.

a. The MAAP calculations performed in the LAR analyzed the following break size LOCAs: 1 inch, 2 inch, 4 inch, 6 inch and 31 inch. Describe the basis for the selection of the break sizes analyzed and discuss how they compare to the design basis calculations crediting containment overpressure.

b. Discuss any key assumptions in the MAAP analysis that may be non-conservative and impacting the loss of NPSH assessment.

c. Attachment A, "MAAP Analyses," included in Attachment 4 of the LAR states that the presented MAAP results "did not include any loss of NPSH. This is well demonstrated by Figures D-1 through D-5." Explain how these figures indicate that the available NPSH is sufficient for operation of the RS and LHSI pumps.

Containment and Ventilation Branch (SCVB):

RAI 1.
Referring to Attachment 1 of letter dated June 30, 2014, Section 2.0, "Proposed Change", states:

> North Anna TS 5.5.15 currently states: "A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995, modified by the following exception:
> NEI-94-01-1995, Section 9.2.3: The first Unit 2 Type A test performed after the October 9, 1999 Type A test shall be performed no later than October 9, 2014."

The licensee proposes to revise TS 5.5.15 as follows:

> "A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in NEI 94-01, Revision 3-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 2012."

The proposed TS 5.5.15 language refers to Revision 3-A of NEI 94-01 which does not contain the limitations and conditions for the extension of the Type A testing that are required in NEI 94-01 Revision 2-A. The current NRC staff position is as follows:

- Licensees that plan to extend Type A test interval up to 15 years and do not plan to extend Type C test intervals beyond 60 months should reference NEI 94-01, Revision 2-A.

- Licensees that plan to extend Type A test interval up to 15 years and/or acquire the option to plan to extend Type C test intervals beyond 60 months up to 75 months should reference NEI 94-01, Revision 3-A as well as the limitations and conditions required in the NRC staff Safety Evaluation Report for NEI 94-01 Revision 2-A.

OR

- Licensee that does not prefer to reference NEI 94-01 Revision 2-A in TS 5.5.15 shall include the following requirements in the TS 5.5.15:

    1. For calculating the Type A leakage rate, the licensee should use the definition in the NEI TR 94-01, Revision 2, in lieu of that in ANSI/ANS-56.8-2002. (Refer to Section 3.1.1.1 of NRC Safety Evaluation Report for NEI 94-01 Revision 2)

    2. The licensee submits a schedule of containment inspections to be performed prior to and between Type A tests. (Refer to Section 3.1.1.1 of NRC Safety Evaluation Report for NEI 94-01 Revision 2)

    3. The licensee addresses the areas of the containment structure, potentially subjected to degradation. (Refer to Section 3.1.1.1 of NRC Safety Evaluation Report for NEI 94-01 Revision 2)

    4. The licensee addresses any tests and inspections performed following major modifications to the containment structure, as applicable. (Refer to Section 3.1.4 of NRC Safety Evaluation Report for NEI 94-01 Revision 2)

    5. The normal Type A test interval should be less than 15 years. If a licensee has to utilize the provision of Section 9.1 of NEI TR 94-01, Revision 2, related to extending the ILRT interval beyond 15 years, the licensee must demonstrate to the NRC staff that it is an unforeseen emergent condition. (Refer to Section 3.1.1.2 of NRC Safety Evaluation Report for NEI 94-01 Revision 2)

Explain and/or revise the license language to reflect the above for further review.

RAI-2.
Refer to Attachment 1, Section 2.0, page 2 of 20, in the second from last line the words "currently states" appears to be an editorial error. Please provide further clarification/explanation.

References

[1] *Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J,* NEI 94-01 Revision 2-A, October 2008.

[2] Nuclear Energy Institute, *Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J,* NEI 94-01 Revision 3-A, July 2012.

[3] *Letter from U.S. Nuclear Regulatory Commission to Biff Bradley (Director, Nuclear Energy Institute), REQUEST REVISION TO TOPICAL REPORT NEI 94-01, REVISION 3-A,"Industry Guideline for Implementing Performance−Based Option of 10 CFR PART 50, Appendix J", Accession Number ML13192A394, August 20, 2013.*

[4] Letter from Dominion to U.S. Nuclear Regulatory Commission, Virginia Electric Power Company North Anna Power Station Units 1 and 2 Proposed License Amendment Request Permanent Fifteen-Year Type A Test Interval, June 30, 2014.