

NRR-PMDAPEm Resource

From: Lingam, Siva
Sent: Wednesday, September 16, 2015 8:24 AM
To: 'jdshaw@nppd.com'
Cc: Markley, Michael; McHale, John; Cheruvenki, Ganesh; Regner, Lisa; Burkhardt, Janet
Subject: Cooper - 10 CFR 50.55a Requests for Fifth Ten-Year Inservice Inspection Interval, RI5-02 (TAC No. MF6336)

Please note the following **official** requests for additional information (RAIs) for Relief Request RI5-02 associated with implementation of Boiling Water Reactor Vessel and Internals Project (BWRVIP) documents in lieu of B-N-1 and B-N-2, and provide your responses within 30 days from the date of this e-mail. Please note that draft RAIs were transmitted to you on September 1, 2015, and you did not request for any clarification call..

By letter dated June 9, 2015 (Agencywide Documents Access and Management System Accession No. ML15167A066), Nebraska Public Power District (NPPD, the licensee), submitted its fifth ten year interval in-service inspection (ISI) program plan RI5-02 for its Cooper Nuclear Station (CNS). The licensee's submittal proposes to use various BWRVIP guidelines as an alternative to certain requirements of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code for ISI of reactor pressure vessel internal components. The U.S. Nuclear Regulatory Commission (NRC) staff reviewed the submittal and determined that additional information is necessary to complete its review. The NRC staff's RAIs are addressed below:

RAI-1: The NRC staff reviewed the submittal dated June 9, 2015, which included previous inspections of the reactor vessel internals (RVI) components at CNS and requests the following information:

- (a) The staff requests that the licensee identify whether the following type of welds were inspected thus far at CNS: (1) furnace sensitized stainless steel vessel attachment welds, and/or (2) vessel attachment welds made with nickel base alloy –182 welding electrodes. If these welds were inspected in the past, provide a brief summary of the inspection results.
- (b) Welds made with nickel base alloy (182 welding electrodes) are more susceptible to intergranular stress corrosion cracking (IGSCC) than stainless steel welds. Therefore, the staff requests that the licensee provide information if any of the welds of the RVI components using 182 electrodes - (both ASME Section XI welds and/or non- ASME Section XI welds) were inspected thus far at CNS. If they were inspected, the licensee is requested to provide a brief summary of the inspection results.
- (c) Confirm whether core shroud welds were ever repaired at CNS.

RAI-2: The licensee is requested to provide information whether it continues to implement the addition of the hydrogen water chemistry (HWC) and/or HWC+ noble metal chemical addition (NMCA) as a mitigation technique in reducing the IGSCC growth rates in the reactor vessel at CNS. Provide details on the methods for determining the effectiveness of HWC/NMCA by using the following parameters:

- (a) Latest measured values of electro chemical potential – applicable to HWC or HWC+NMCA,
- (b) Latest measured values of hydrogen /oxygen molar ratio—applicable if HWC+NMCA method is implemented, and,
- (c) Latest measured values of catalyst loading (platinum) applicable to HWC+ NMCA

Many BWR units have implemented the newly developed on-line noble chemical (OLNC) addition to their reactor vessels. If OLNC was implemented at CNS, the staff requests that the licensee provide the latest measured values for the aforementioned items (a) and (b).

Provide the availability of HWC/ HWC+NMCA during the normal operation of CNS. Additionally, provide information regarding the time of implementation of HWC/NMCA or HWC/OLNC at CNS.

RAI-3: Confirm whether a plant-specific leakage assessment was performed, as required by BWRVIP-18, BWRVIP-41, and, BWRVIP-76 for the internals at CNS that accounts for the leakage from all internals that impact the ability to cool the core and maintain peak clad temperature (PCT) within allowed limits during postulated loss of coolant accidents. Provide a summary of all internal components included in the leakage assessment along with a summary of the following for each component:

- (a) the number and length of all cracks detected in past examinations for the component
- (b) the number and length of all cracks evaluated in the leakage assessment
- (c) the calculated leak rate from each crack evaluated in the leakage assessment.

Confirm whether a plant-specific integrated leakage assessment (if any) associated with the aforementioned RVI components was performed at CNS.

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