



Nebraska Public Power District

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54.17

NLS2009100
December 21, 2009

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: Response to Request for Additional Information for the Review of Cooper Nuclear Station License Renewal Application
Cooper Nuclear Station, Docket No. 50-298, DPR-46

- References:**
1. Letter from Tam Tran, U.S. Nuclear Regulatory Commission, to Stewart B. Minahan, Nebraska Public Power District, dated November 19, 2009, "Request for Additional Information for the Review of the Cooper Nuclear Station License Renewal Application (TAC No. MD9763 and MD9737)."
 2. Letter from Stewart B. Minahan, Nebraska Public Power District, to U.S. Nuclear Regulatory Commission, dated September 24, 2008, "License Renewal Application" (NLS2008071).

Dear Sir or Madam:

The purpose of this letter is for the Nebraska Public Power District (NPPD) to respond to the Nuclear Regulatory Commission (NRC) Request for Additional Information (Reference 1) regarding the Cooper Nuclear Station License Renewal Application (LRA) (Reference 2). The response is provided in Attachment 1. Additionally, in a telephone conference call conducted on September 21, 2009, NPPD agreed to make certain additional commitments and LRA changes. The commitments are addressed in Attachment 2, and the LRA changes are provided in Attachment 3.

Should you have any questions regarding this submittal, please contact David Bremer, License Renewal Project Manager, at (402) 825-5673.

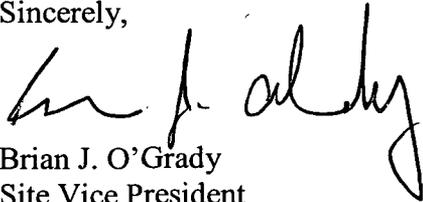
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I declare under penalty of perjury that the foregoing is true and correct.

Executed on 12/21/09
(Date)

Sincerely,



Brian J. O'Grady
Site Vice President

/wv

Attachments

cc: Regional Administrator w/ attachments
USNRC - Region IV

Cooper Project Manager w/ attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachments
USNRC - CNS

Nebraska Health and Human Services w/ attachments
Department of Regulation and Licensure

NPG Distribution w/ attachments

CNS Records w/ attachments

Attachment 1

Response to Request for Additional Information
for License Renewal Application
Cooper Nuclear Station, Docket No. 50-298, DPR-46

The Nuclear Regulatory Commission (NRC) Request for Additional Information (RAI) regarding the License Renewal Application (LRA) is shown in italics. The Nebraska Public Power District's (NPPD) response to this RAI is shown in block font.

NRC Request: RAI B.1.10-6

In the NPPD Letter NLS2009055, dated July 29, 2009, the applicant submitted response to RAI B.1.10-2 related to recoating the torus prior to or during the period of extended operation to reduce the corrosion rate. The applicant stated that NPPD does not have firm plans to recoat the torus. However, NPPD will continue to inspect the torus prior to and during the period of extended operation as required by ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWE. The indications found during the inspections will continue to be evaluated to determine the need for corrective actions including, but not limited to, recoating. The last recoating of areas within the torus was the result of the 2005 torus inspection.

The staff is concerned that the large number of repairs, excessive zinc depletion, and pitting at thousands of locations to the torus during the last 35 years indicate that the integrity of the torus coating cannot be relied upon during the period of extended operation. Normal life of the torus coating is 15-20 years and CNS torus has never been recoated. In addition, CNS internal documents concerning self assessment of the torus coating have previously recommended recoating of the torus. Therefore, in order to complete its review, the staff requests the applicant to provide detailed justification for not making a commitment to recoat the torus prior to the start of period of extended operation. Based on site specific operating experience and thousands of repairs performed during the last 35 years, it appears that the torus coating have significantly exceeded its useful life. The response should also include the following information.

- 1. How many repairs have been performed to the Cooper torus shell coating until now?*
- 2. How many of these repairs were performed at locations where the torus base metal thickness had been reduced by greater than 10 percent?*
- 3. How many of the repairs required augmented inspection (including UT examination) in accordance with ASME Section XI, subsection IWE Code, Table 2500-1? Articles IWE-3122.3.b, IWE 3200, IWE 3511.3 and IWE-2420 of the ASME Code requires augmented examination of the area containing flaw or degradation if the base metal thickness is reduced by greater than 10 percent.*
- 4. The bottom half of interior surface is not easily accessible for visual examination. Therefore, does CNS have any plans to perform UT examination from the torus*

exterior surface at a number of randomly selected locations to demonstrate with 95 percent confidence that 95 percent of the torus surface has base metal thickness greater than 90 percent of the nominal thickness? If no plans exist, explain the current inspection plan and how the plan ensures the structural integrity of the torus, now and during the period of extended operation.

The staff needs the above information to confirm that the effects of aging of the torus will be adequately managed so that it's intended function will be maintained consistent with the current licensing basis for the period of extended operation as required by 10 CFR 54.21(a)(3).

NPPD Response:

1. A total of approximately 2200 coating repairs have been made to the Cooper Nuclear Station (CNS) torus shell for a total recoated area of approximately 102 ft² since implementing the ASME Code required inspections in 2001, as specified by 10 CFR 50.55a. These coating repair areas constitute about 0.8% of the torus underwater surface area of 12,850 ft².
2. Inspections have identified 18 pits where the nominal thickness has been reduced by greater than 10%. The CNS torus shell nominal wall thickness is 11/16" on the bottom half sections. Ten percent (10%) would equal 0.069". The maximum measured torus pit is about 0.092" or 13% of the nominal wall thickness. These pits were evaluated as acceptable.
3. None of the 18 pits that exceeded the 10% nominal wall thickness required augmented ultrasonic testing (UT) inspection in accordance with IWE-3511.3, which states "*Supplemental examinations [UT] in accordance with IWE-3200 shall be performed when specified as a result of the engineering evaluation.*" CNS engineering evaluations, in accordance with IWE-3122.3, have not required augmented UT examinations due to the localized nature of the pitting as opposed to a large area of general wall thinning, which has not been observed at CNS. The pits were recoated to stop further degradation. CNS does perform augmented visual testing (VT) inspections of the wetted surfaces in accordance with Category EC once each inservice inspection (ISI) period, thus meeting the requirements of Table IWE-2500-1 for augmented examinations and IWE-2420 for successive inspections.
4. Acceptance of the examination areas based on a statistical confidence level of at least 95%, (identified by ASME B&PV Code Section XI subsection IWE-2500(4)(a)) applies to those areas requiring augmented UT examinations. CNS torus shell examination results to date have not required augmented UT inspection. Accordingly, the CNS torus examination results have not been subject to the requirements of paragraph IWE-3511.3 of the Code.

The wetted portion of the torus (essentially 100% of the portion below the water level) is visually inspected using divers once each ISI period or about every other refueling outage. The CNS Containment ISI CII-IWE Program has been effective at managing the effects of aging on the torus and maintaining its structural integrity. To date, less than 0.8% of the torus wetted area has warranted recoating since ASME Section XI examinations began in 2001. Using conservative CNS-specific criteria to evaluate and recoat torus pitting stops further degradation of those identified areas. Performing visual inspections of 100% of the wetted surface areas designated as Category EC at a frequency of once per ISI period in accordance with ASME Section XI Code requirements will provide the long term management of pitting degradation. The program conservatively assures the effects of aging will continue to be managed so that the torus will remain capable of performing its intended functions consistent with the current licensing basis through the period of extended operation.

NUREG-1801, Section XI.S1 designates ASME Section XI, Subsection IWE as the recommended aging management program for steel containments. There are no Preventive Actions (such as a Service Level 1 coating) listed in the Evaluation and Technical Basis. As stated in Section B.1.10 of the LRA, the CNS Containment ISI Program, with enhancements, is consistent with the program described in NUREG-1801, Section XI.S1, ASME Section XI, Subsection IWE. The detailed operating experience provided above demonstrates that the CNS ISI Program has historically been effective in managing torus corrosion. Accordingly, there is reasonable assurance that this program will continue to provide effective aging management of the torus during the period of extended operation, without the precondition of recoating. However, recoating remains an option, if warranted, to more efficiently manage the effects of aging based on future operating experience.

Attachment 2

Response to Miscellaneous Topics Regarding
the License Renewal Application
Cooper Nuclear Station, Docket No. 50-298, DPR-46

Dialogue has occurred with the Nuclear Regulatory Commission (NRC) staff based on previous responses to Requests for Additional Information (RAI). As documented in the summary of the telephone conference call conducted on September 21, 2009, these discussions have resulted in the need for the Nebraska Public Power District (NPPD) to make certain regulatory commitments which will be relied upon by the NRC. Consistent with NPPD standard practice, these commitments are addressed below so as to be formally entered on the Cooper Nuclear Station (CNS) docket.

1. NPPD will submit (or otherwise make available for NRC review and approval) a non-proprietary version (or a redacted version per 10 CFR 2.390) of an analysis of the core plate rim bolts that demonstrates their adequacy considering potential loss of pre-load through the period of extended operation. This will be provided at least two years prior to the period of extended operation. NPPD expects to implement this commitment by a generic analysis sponsored by the BWRVIP in collaboration with EPRI.

Reference: Conference call conducted on September 21, 2009 (with a follow-up discussion on December 2, 2009), regarding the response to RAI 4.1-1.

2. NPPD will confirm that there are no niobium-bearing CASS materials used for vessel internal components, or provide a flaw evaluation methodology for niobium-bearing CASS internal components for staff review and approval. This will be provided at least two years prior to the period of extended operation. NPPD expects to implement this commitment by a generic analysis sponsored by the BWRVIP in collaboration with EPRI.

Reference: Conference call conducted on September 21, 2009, regarding the response to RAI B.1.37-1.

3. NPPD will confirm there are no CASS materials with greater than 25% ferrite or provide a flaw evaluation methodology for CASS internal components with greater than 25% ferrite for staff review and approval. This will be provided at least two years prior to the period of extended operation. NPPD expects to implement this commitment by a generic analysis sponsored by the BWRVIP in collaboration with EPRI.

Reference: Conference call conducted on September 21, 2009, regarding the response to RAI B.1.37-2.

In the conference call, the CNS License Renewal Project staff expressed a willingness to make a commitment to perform neutron attenuation testing on an available Boral coupon once during the period of extended operation. Since that discussion, the NRC staff promulgated draft interim staff guidance (ISG) (LR-ISG-2009-01) on plant-specific aging management review and aging management program for neutron-absorbing material in spent fuel pools. This draft guidance is undergoing industry review and comment. As the draft ISG provides testing guidance that is different than what was being considered for CNS, it is inappropriate for NPPD to make this commitment prior to the NRC receiving industry comments. This was discussed with the NRC Staff during a conference call on December 2, 2009.

Attachment 3

Changes to the License Renewal Application
 Cooper Nuclear Station, Docket No. 50-298, DPR-46

This attachment provides changes to the License Renewal Application (LRA) as agreed to in the September 21, 2009 conference call between the Nebraska Public Power District and the Nuclear Regulatory Commission (NRC) staff, as well as other miscellaneous changes. The changes are presented in underline/strikeout format.¹

1. LRA Table 2.4-4, "Bulk Commodities Components Subject to Aging Management Review," is revised to add the following line item under "Other Materials":

Component	Intended Function
<u>Roof Membrane</u>	<u>Shelter or protection</u> <u>Support for Criterion (a)(2) equipment</u>

Reference: Clarification requested by the NRC Staff in a conference call conducted on September 21, 2009.

2. LRA Table 3.3.2-14-14, "Off Gas System, [10 CFR 54.4(a)(2)]," as revised in NLS2009095², Attachment 4, LRA Change 10, is revised to read:

Lubricator	Pressure boundary	Glass	Lube oil (int)	None	<u>Oil analysis</u> <u>None</u>	VII.J-10 (AP-15)	3.3.1-93	A
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Reference: Correction.

3. LRA Table 3.5.2-4, "Bulk Commodities," is revised to include the following line item:

<u>Roof membrane</u>	<u>EN, SNS</u>	<u>Elastomer</u>	<u>Air - outdoor</u>	<u>Cracking</u> <u>Change in material properties</u>	<u>Structures Monitoring</u>	<u>II.B4-7 (C-18)</u>	<u>3.5.1-16</u>	<u>E</u>
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¹ The changes shown are made against the original LRA submitted on September 24, 2008. Where other previously made LRA changes affect the same text, a footnote is provided cross-referencing the letter where the previous change was made.

² NLS2009095, Stewart B. Minahan to USNRC, Response to Request for Additional Information for License Renewal Application," November 30, 2009, RAI 2.3.3.12 OG-9.

NLS2009100
Attachment 3
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Reference: Clarification requested by the NRC Staff in a conference call conducted on September 21, 2009.