October 29, 2009

Mr. Stewart B. Minahan
Chief Nuclear Officer, Vice President - Nuclear
Cooper Nuclear Station
Nebraska Public Power District
72676 648A Avenue
Brownville, NE 68321

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE COOPER NUCLEAR STATION LICENSE RENEWAL APPLICATION (TAC NO. MD9763 AND MD9737)

Dear Mr. Minahan:

By letter dated September 24, 2008, Nebraska Public Power District submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the Operating License No. DPR-46, for Cooper Nuclear Station for review by the U.S. Nuclear Regulatory Commission (or the staff). The staff is reviewing the information contained in the license renewal application and the associated Environmental Report submitted. The staff has identified, in the enclosure, areas where additional information is needed to complete the review. Further requests for additional information may be issued in the future.

Items in the enclosure were discussed with Mr. David Bremer. A mutually agreeable date for the response is within 30 days from the date of this letter, in order to maintain the license renewal review schedule. If you have any questions, please contact me at 301-415-3617 or by e-mail at Tam.Tran@nrc.gov, or Bennett Brady at 301-415-2981 or by e-mail at Bennett.Brady@nrc.gov.

Sincerely,

/RA/

Tam Tran, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosure:
As stated

cc w/encl: See next page

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DATE	10/26/09	10/26/09	10/28/09	10/29/09	10/29/09

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Letter to Stewart. B. Minahan from Tam Tran dated October 29, 2009

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE COOPER NUCLEAR STATION LICENSE RENEWAL APPLICATION (TAC NO. MD9763 AND MD9737)

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Cooper Nuclear Station

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REQUEST FOR ADDITIONAL INFORMATION
COOPER NUCLEAR STATION
LICENSE RENEWAL APPLICATION

RAI 2.3.3.12 AR-4 Air Removal System

Background

Title 10 of the *Code of Federal Regulations* Part 54.21(a)(1) (10 CFR 54.21(a)(1)) requires the applicant to provide a list of structures and components subject to an aging management review (AMR).

Issue

a) In RAI 2.3.3.12 AR-2, dated July 16, 2009, the staff identified in the Updated Safety Analysis Report (USAR), a safety function for main steam line high radiation signal immediately tripping the mechanical vacuum pumps and closing the pumps' inlet and outlet valves in the event of a dropped rod accident. The license renewal application (LRA) does not identify this function under the air removal (AR) system nor do the LRA drawings highlight the flow path. In its response, dated August 17, 2009, the applicant stated that the isolation valves for the mechanical vacuum pumps have an intended function of isolating the vacuum pumps from the main condenser in the event of a dropped rod accident. The applicant added the function to the LRA for the AR system. However, the applicant excluded the isolation valve for the scope of license renewal based on the valve function being completed with moving parts, and the passive pressure boundary provided by the valve bodies was not required to prevent the vacuum pumps from actively discharging air from the condenser through the elevated release point (ERP). Therefore, the applicant's position is that the valves are not subject to an AMR.

The staff does not agree with the applicant's rational, which excludes the isolation valves from the scope of license renewal and subject to an AMR. In accordance with 10 CFR 54.21, valve bodies are long-lived, passive components that are subject to an AMR. The valve's bodies are an integral part of the pressure boundary and are required to perform the isolation function. In addition, the piping from the condenser to the valves and the associated components are part of the pressure boundary and are required to perform the isolation function; therefore, they also should be included in scope as passive, long-lived components and subject to an AMR.

b) In RAI 2.3.3.12-AR-3, a similar issue was identified with the steam jet air ejectors. In the response, the applicant correctly included part of the flow path and valves 'from' the turbine building to the off-gas (OG) building in scope of license renewal and subject to an AMR, but the applicant did not include the flowpath 'inside' the turbine building. The piping and components inside the turbine building are necessary to provide a pressure boundary function to isolate the condenser on a high radiation signal.

ENCLOSURE

Request

a) The applicant needs to include the passive, long-lived components necessary to isolate the flow path up to and including the isolation valves for the mechanical vacuum pumps in the scope of license renewal in accordance with the requirement as stated in 10 CFR 54.21; or provide an adequate justification, that is in accordance with the requirements stated in 10 CFR 54.21, for not including the above described components.

b) The applicant needs to include the long-lived components from the isolation valves on piping 12" AR-2 up to and including 16" AR-2 holdup line in the scope of license renewal in accordance with the requirement as stated in 10 CFR 54.4(a) or provide an adequate justification why a failure of this piping will not cause a loss of the pressure boundary function on 16' AR-2.

c) The applicant needs to include the passive piping and components upstream of piping 48" AR-1 to the condenser in the scope of license renewal in accordance with the requirements as stated in 10 CFR 54.4(a), or provide an adequate justification why a failure of this piping will not cause a loss of the pressure boundary function.

RAI 2.3.3.12 OG-9 Off-gas System

Background:

10 CFR 54.21(a)(1) requires the applicant to provide a list of structures and components subject to an AMR.

Issue:

In RAI 2.3.3.12 OG-5, dated July 16, 2009, the staff noted in LRA Section 2.3.3.12 for the OG system the applicant includes several piping runs with instrumentation in the off-gas building in scope of license renewal and highlighted orange on LRA Drawing 2037, indicating the piping is in scope in accordance with 10 CFR 54.4(a)(1). Yet the fluid-filled oil system in the OG building that supports the OG system is not shown as in scope of license renewal. The staff requested the applicant justify the exclusion of the oil system components from the scope of license renewal. In its response to RAI 2.3.3.12 OG-5, dated August 17, 2009, the applicant stated that orange highlighted piping to OG-DPT-550 and OG-DPIS-550 was in scope for a functional (a)(2) not (a)(1) as a pressure boundary for the safety-related instruments OG-DPT-114 and OG-DPIS-114. Therefore, the applicant position is that there are no safety-related components in the OG building; hence, the oil system components are not required to be included in scope of license renewal.

The staff disagreed with the applicant's response to RAI 2.3.3.12 OG-5. The staff noted that part of the piping to pressure instruments OG-DPT-550 and OG-DPIS-550 included piping to monitor and equalize the vacuum between the OG 48" hold up line and the Z sump. This function is described in USAR Chapter IX, Section 4.5.1 as having the capability to interfere with post-accident Z sump operation. The applicant identified these monitoring instruments as safety-related, but did not identify their location, which appears to be in the OG building. Also along with the monitoring as a safety-related function, the equalization line should be safety-

related as well. From LRA Drawing 2037, the ¾" equalization line appears to be in the OG building as well. Having these safety-related components in the OG building contradicts the applicant's information provided in the RAI response that there are no safety-related components in the OG building.

Request:

a) Examine whether there are safety-related components in the OG building, to include the instruments used to monitor the pressure in the sump, and the equalization line from the Z sump to the holdup line for inclusion in scope under 10 CFR 54.4(a)(1), and perform an evaluation of nonsafety-related components for inclusion in scope under 10 CFR 54.4(a)(2).

b) Amend the LRA to add the (a)(1) functions for monitoring and equalizing the sump with the hold up line, that were identified in RAI 2.3.3.12 OG-7 or provide adequate justification otherwise.

RAI 2.3.3.12 OG-10 Off-gas System

Background:

10 CFR 54.21(a)(1) requires the applicant to provide a list of structures and components subject to an AMR.

Issue:

In RAI 2.3.3.12 OG-7, dated July 16, 2009, the staff noted in the LRA Section 2.3.3.12 there were functions identified for the OG system under 10 CFR 54.4(a)(1), indicating that the OG system contained safety-related components. The staff requested the applicant identify the safety-related components in the OG system and the safety function they provide. In its response to RAI 2.3.3.12 OG-7, dated August 17, 2009, the applicant identified the safety function that OG system performs is venting the Z sump to the ERP, and monitoring and equalizing the vacuum between the 48" hold-up line and the Z sump. The applicant provided a list of the identification number of the safety-related valves and their location on LRA Drawings 2037 and 2005 sheet 2.

The staff does not agree that the list was comprehensive to include all the safety-related components in the OG system. The applicant supplied a list of the safety-related valves in the OG system from their database. However, the applicant did not provide any piping line numbers. There are several runs of piping that do not have valves; therefore the staff can not positively identify the lines that are safety-related. In addition, there are other valves not on the list provided that appear to be on safety-related lines.

Example: on LRA Drawing 2005 sheet 2 there are two drain lines from the ERP to the Z sump. The list provided by the applicant includes OG-113, hence indicating that line 1 ½" FDR-2 is safety-related; however, the redundant line 1 ½" FDR-2 that is heat-traced contains valve OG-104, which was not included on the list of safety-related valves in the OG system.

Request:

Perform a more in-depth review of the OG system not relying solely on using their component database system and provide a complete list of safety-related components, to include piping, in order for the staff to ensure that the applicant did not omit any components from the scope of license renewal.

RAI 2.3.3.12 PD-4 Plant Drains

Background:

During the plant walkdown, the staff noted that there was turbine building roof drain piping located in areas of the plant containing system, structure, and components (SSCs) in the scope for license renewal under the applicability of 10 CFR 54.4(a)(1). In addition to the turbine building roof drains, the staff noted there was black drain pipe on the back wall in the emergency battery room, which could not be positively identified as to what system it belonged to and if it was properly identified as in scope for license renewal.

The staff could not identify an LRA section describing the roof drains or LRA drawings that show the flow path of the roof drains except for LRA drawing 2038 SH 1, which shows some reactor building roof drains.

Issue:

10 CFR 54.21 requires each applicant to describe and justify the methods used to identify and list those structures and components subject to an AMR. The staff saw turbine building roof drain piping in an area with 10 CFR 54.4 (a)(1) SSC, but could not find this piping accounted for in the LRA, including the LRA drawings. Furthermore, the drain pipe in the emergency battery room could not be accounted for in the LRA, including the LRA drawings. Additionally the LRA does not mention any roof drains other than on LRA drawing 2038 SH 1. Many buildings contain 10 CFR 54.4 (a)(1) SSC which may have internal roof drain piping. None of this piping is accounted for in the LRA.

Request:

a) Justify the exclusion of above mentioned piping from the scope of license renewal under 10 CFR 54.4(a)(2) and subject to an AMR.

b) Identify all roof drains for every building that contains SSC that are in the scope for license renewal under the applicability of 10 CFR 54.4(a)(1) and show which roof drain piping is and is not in scope for license renewal under the applicability of 10 CFR 54.4(a)(2).

RAI 2.3.3.12 PD-5 Plant Drains

Background:

The LRA originally listed the RW system function of providing "a barrier to ground level release via the Z sump during accidents where the SGT system must operate" as an intended function for 10 CFR 54.4(a)(1). In response to RAI 2.3.3.12 OG-6 and RAI 2.3.3.12 PD-3, the applicant revised the above stated function to be an intended function for 10 CFR 54.4(a)(2) by explaining that valves RW-V-10 and RW-V-11 and the remaining portion of the flow path to the radwaste building is nonsafety-related with an intended function in accordance with 10 CFR 54.4(a)(2).

USAR Chapter X, Section 14.2 lists the safety design basis of the equipment and floor drainage systems. This section lists two safety design basis. The first safety design basis is to ensure that the Z sump in flows from condensation does not impede the flow of the SGT system to the ERP. The second safety design basis is to provide a barrier to ground level release via the Z sump during accidents where the SGT system must operate.

Issue:

The portion of the piping described in the Background, that provides a barrier to a ground release, is necessary in performing the second safety design basis described above. Yet the applicant has designated this piping to be in scope for license renewal in accordance with 10 CFR 54.4(a)(2) and not 10 CFR 54.4(a)(1).

Request:

Justify why the portion of the piping described in the Background, which provides a barrier to a ground release, is not designated in scope for license renewal in accordance with 10 CFR 54.4(a)(1), since it performs the second safety design basis described in USAR Chapter X, Section 14.2. If the piping is in scope for 10 CFR 54.4(a)(1), SSC in the vicinity needs to be evaluated for in scope 10 CFR 54.4(a)(2).

RAI 2.3.3.10 IA-1 Instrument Air

Background:

Drawing 2010 SH 1, Flow Diagram Instrument Air Control & Turbine Building, shows fire protection air accumulators FP Sys 5, 14,8,9,10,11,1A&7, 21,15,16,17,18,19, & 20 among others and associated piping. The accumulators and associated supply air piping and valve bodies are not shown as subject to an AMR.

Issue:

10 CFR 54.4 (a)(3) states that all systems, structures and components relied on in safety analyses or plant evaluations to perform a function that demonstrates compliance with the commissions regulations for fire protection (10 CFR 50.48) are within the scope of license renewal.

10 CFR 54.21 states that systems structure and components within the scope of license renewal are subject to an AMR if they perform their intended function without moving parts or without a change in configuration or properties and are not subject to replacement based on qualified life or specified time period.

Request:

Explain why the above described system, structure and components are not shown as subject to an AMR and listed in the appropriate tables of the LRA.

RAI 2.3.3.10 IA-2 Instrument Air

Background:

Drawing 2022 SH 1, Flow Diagram Primary Containment Cooling and Nitrogen Inerting System, shows a 1/2 inch pipe at location A-6 within the scope of license renewal and subject to an AMR and continuing on drawing 117C3317 SH 2. This drawing is not in the LRA.

Issue:

Since drawing 117C3317 SH 2 is not in the LRA, the staff cannot determine whether the applicant has appropriately considered the continuation of the piping on this drawing to be within the scope of license renewal and subject to an AMR in accordance with 10 CFR 54.21 and 10 CFR 54.4.

Request:

Identify the above listed piping and determine whether the piping is within the scope of license renewal and subject to an AMR. Revise the LRA accordingly.

RAI 2.3.4.2 CF-2 Condensate Filter Demineralizer

Background:

10 CFR 54.21(a)(1) requires the applicant to provide a list of structures and components subject to an aging management review (AMR).

Issue:

In RAI response 2.3.4.2-CF-1, the applicant indicated that the components corresponding to the condensate filter demineralizer (CFD) system are in scope and subject to AMR include valve body and piping components, and are shown on LRA drawing 2049, sheet 4 (location B/C-5). However, the staff could not identify these components in the provided location.

Request:

Provide clarification of the components that comprise of the CFD system and their spatial interaction with any safety-related systems.

RAI 2.3.4.2 CM-3 Condensate Makeup

Background:

10 CFR 54.21(a)(1) requires the applicant to provide a list of structures and components subject to an aging management review (AMR).

Issue:

In LRA Section 2.3.4.2, the applicant states that the condensate makeup (CM) system has the intended functions for 10 CFR 54.4(a)(1) to provide water to the emergency core cooling systems (ECCS). The applicant states the emergency condensate storage tanks (ECSTs) and CM system components that support the high pressure coolant injection (HPCI) system pressure boundary are reviewed with the HPCI system in LRA Section 2.3.2.4. There were no specific CM components highlighted in a unique color designation to support this (a)(1) function.

The staff noted in the Cooper Nuclear Station USAR Chapter XIV, Section 6.4, the applicant credits the flow path from condensate storage tank (CST) 1A to the core spray (CS) and residual heat removal (RHR) pumps when the suppression pool is drained in response to U.S. Nuclear Regulatory Commission IE Bulletin No. 84-03, August 24, 1984. The applicant's evaluation concluded that upon a loss of refueling cavity inventory due to a seal failure, the CS and/or the RHR systems would allow the operator ample time to place fuel in a safe location per their emergency operating procedures. CNS Technical Specifications allow refueling operations to be conducted with the suppression pool drained provided an operable CS or low pressure coolant injection subsystem is aligned to take a suction on CST 1A, containing at least 150,000 gallons. However, the applicant does not identify CST 1A, nor the flow path from CST 1A (16" CH-4) as being in scope of license renewal from the CST until the reactor building, and only identifies selected piping (14" CH-4) in scope under 10 CFR 54.4(a)(2).

Request:

Provide justification of the exclusion of any components in the CM system for the scope of license renewal used to provide ECCS with water that are not included with the HPCI system.