

June 23, 2004

LICENSEE: Entergy Operations Inc.

FACILITY: Arkansas Nuclear Station, Unit 2

SUBJECT: SUMMARY OF TELEPHONE CALLS HELD ON MARCH 24 AND MAY 27, 2004 BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) STAFF AND ENTERGY OPERATIONS INC., REPRESENTATIVES CONCERNING DRAFT REQUEST FOR ADDITIONAL INFORMATION PERTAINING TO THE ARKANSAS NUCLEAR ONE, UNIT 2 LICENSE RENEWAL APPLICATION (TAC NO. MB8402)

On March 24 and May 27, 2004, the NRC staff and representatives of the Entergy Operations Inc., held telephone conferences to discuss draft request for additional information (RAI) and draft RAI responses pertaining to the technical review for the Arkansas Nuclear One, Unit 2 license renewal application (LRA).

These conference calls were used to clarify the intent of the staff's questions. On the basis of the discussion, the applicant acknowledged a better understanding of each question. No staff decisions were made during these telephone conferences. In some cases, the applicant agreed to provide information for clarification, and the staff revised the format and content of some RAI's.

Enclosure 1 provides a list of the telephone conference calls participants. Enclosure 2 contains a listing of the draft RAI's, draft RAI responses, and a brief description of the status of each item. A copy of this summary was provided to the applicant for comment.

/RA/

Gregory F. Suber, Project Manager
License Renewal Section A
License Renewal and Environmental Impacts Program
Division of Regulatory Improvement Programs
Office of Nuclear Reactor Regulation

Docket No.: 50-368

Enclosures: As stated

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**LIST OF PARTICIPANTS
TELEPHONE CALLS WITH ENTERGY OPERATIONS INC.
ARKANSAS NUCLEAR ONE, UNIT 2
LICENSE RENEWAL APPLICATION**

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Ted Ivy
Andy Taylor
Michael Stroud
Fiona Wang
George Thomas
Gregory Suber
Muhammad Razaque

Affiliation

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Entergy
Entergy
Entergy
Taiwan Power
U.S. Nuclear Regulatory Commission (NRC)
NRC
NRC

May 27, 2004

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**REQUEST FOR ADDITIONAL INFORMATION
FOR THE REVIEW OF THE ARKANSAS NUCLEAR ONE, UNIT 2,
LICENSE RENEWAL APPLICATION (TAC NO. MB8402)**

2.3.1 Reactor Coolant System

Draft RAI 2.3.1.1-1 Reactor Vessel and CEDM Pressure Boundary

It is stated that, "...The O-rings do not support an intended function of the reactor vessel and are therefore not subject to aging management review." The staff believes that the O-ring leak monitor tube serves as a pressure boundary and the piping should be within the scope of license renewal. Please provide justification for the exclusion or submit an aging management review (AMR) for the stated component.

Draft Response: Per Section 4.1.2 of the RCS AMR, the RV flange leak detection tube contains an integral orifice which limits flow to within the makeup capability of the plant.

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI 2.3.1.4-1 Pressurizer

In section 2.3.1.4 it is stated that, "...The Pressurizer components provide RCS pressure control for mitigation of a feedwater line break (FWLB) with AC available as described in Section 15.1.14.2.2.2. However, the most limiting FWLB is without AC power available and the pressurizer sprays are not credited to mitigate that event. Therefore, RCS pressure control using the pressurizer sprays is not an intended function of the pressurizer."

Since credit is taken to mitigate an accident, RCS pressure control using the pressurizer sprays is an accident mitigation function of the pressurizer even if the postulated accident is not the limiting one. Since credit is taken for the pressure control in the accident analysis, pressurizer relief valve discharge pipe and the quencher tank should be within the scope of licenses renewal. Provide justification for the exclusion or submit an AMR for the components.

Draft Response: None provided.

Status: The staff requested that the applicant provide more detail of how the pressurizer relief valve discharge was reviewed in the scoping and screening process. During a subsequent call on May 27, 2004, the applicant provided the following information and submitted the clarification in an email dated May 27, 2004:

The referenced statement means that pressurizer spray was assumed to function in order to establish the worst case conditions for the analysis. Actuation of pressurizer spray delays the reactor trip resulting in additional heat input from the reactor into the RCS and additional time for steam generator inventory to be lost through the break. This maximizes the energy in the RCS and minimizes the steam generator inventory available to remove that energy which results in higher peak pressurizer pressure. If

pressurizer spray does not function, then the reactor trip will occur sooner while more inventory remains in the steam generators thus resulting in lower peak pressurizer pressure in the analysis.

Additionally, the staff requested clarification of whether the pressurizer relief valve discharge piping and quench tank are required to be within the scope of license renewal as required by 10 CFR 54.4(a)(2).

Neither 10 CFR 54.4(a)(1) nor 10 CFR 54.4(a)(3) require the pressurizer relief valve discharge piping and quench tank to be in the scope of license renewal. These components are considered to be in the scope of license renewal for 10 CFR 54.4(a)(2). The pressurizer relief valve discharge piping and the quench tank are included in LRA Table 2.3.3-11 as "Piping" and "Tank" on page 2.3-68.

The staff discussed the clarification with the applicant and acknowledged that the applicant understood the issue. The RAI was submitted formally.

Draft RAI 2.3.1-1-1

Reactor Vessel Vent pipe and flange are included within the scope of license renewal but the nozzle is not. Provide justification for the exclusion or submit an AMR for the components.

Draft Response: The vent pipe is the nozzle. The pipe listed in the application is welded to the underside of the head. This pipe is inconel and has the appropriate aging management programs (Penetration Inspections) associated with it.

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI 2.3.1-1-2

Please verify that the thermal shield is within the scope of license renewal. The intended function of the thermal shield is to provide shielding for the safety-related SSCs, such as the reactor vessel and the internals, from gammas and neutrons. A thermal shield may be relied upon to minimize irradiation induced embrittlement of the vessel or the internals. Justify its exclusion if it is excluded from aging management; otherwise, submit an AMR for the subject component.

Draft Response: ANO-2 has no thermal shield as part of its RV internals. See SAR Table 3.9-5 which shows that ANO-2 does not have a shield unlike Fort Calhoun.

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI 2.3.1-2-1

In Table 2.3.1-3, Class I fittings are listed as components subject to AMR. This is a very broad categorization. Please provide a list of specific component fittings.

Draft Response: Similar to GALL, this general term applies to all elbows, tees, reducers, and flanges associated with Class 1 piping as defined by the LRS drawings.

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI 2.3.1-2-2

Why are the following parts excluded? The staff requests clarification for the following reactor internals exclusion:

CSB Bolts and Lower Internals Assembly Bolts
CEA Shroud bolts (Shroud Fasteners are the same as Bolts?)
CSB Snubber Bolts
Thermal Shield Bolts
Core Shroud Bolts
UGS Ring Shim, Tab & Plate, Locking Strip, Guide Pin, Alignment Screw & Nut, Key Slot Tab, Hold Down Ring, Sleeves
Lower Internals Assembly Core Support Columns, Core Support Plate, Support beams and flanges, anchor block and dowel pins
Thermal Shield positioning Pin and Shim
Fuel Assembly Alignment Plate

Draft Response:

CSB Bolts and Lower Internals Assembly Bolts: ANO-2 has a welded internals design.
CEA Shroud bolts(Shroud Fasteners are the same as Bolts?) Fasteners are the same as bolts.
CSB Snubber bolts: Will have to add CSB snubber shims and bolts.
Thermal Shield bolts: No thermal shield.
Core Shroud Bolts: Core shroud is welded not bolted.
UGS Ring Shim, Tab & Plate, Locking Strip, Guide Pin, Alignment Screw & Nut, Key Slot Tab, Hold Down Ring, Sleeves: Refer to p. 2.3-12 of LRA.
Lower Internals Assembly Core Support Columns, Core Support Plate, Support beams and flanges, anchor block and dowel pins: Refer to p. 2.3-12 of LRA.
Thermal Shield positioning Pin and Shim: No thermal shield.
Fuel Assembly Alignment Plate: Refer to p. 2.3-12 of LRA.

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI 2.3.1-2-3

Diffuser plates are not identified as within the scope of license renewal. The above component provides flow distribution of the reactor coolant and could meet the criteria identified in 10 CFR 54.4(a)(2), and therefore, should be within the scope of license renewal. Please provide justification for the exclusion or submit an AMR for the components.

Draft Response: No diffuser plates in ANO-2 RV internals.

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI Table 2.3.1-2-4

Core support ledge does not appear to be included within the scope of license renewal. Please provide justification for the exclusion or submit an AMR for the components.

Draft Response: Refer to upper flange, p. 2.3-11.

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI 2.3.1-2-5

In UFSAR Section 5.4.6.2 states, "Snubbers built into the lower portion of the reactor vessel shall limit the amplitude of flow induced vibrations in the core support barrel. Core stops are also built into the vessel to limit the downward drop of the core if the core support barrel should fail." These components are not within the scope of license renewal. Why are they excluded?

Draft Response: Refer to core stops (p. 2.3-8) and core stabilizing lugs (p. 2.3-8).

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI 2.3.1-2-6

In-Core Instrumentation: Instrumentation tubes and safe ends were not identified in the LRA (Table 2.3.1.1) as within the scope of license renewal. The subject components perform a pressure boundary function, and therefore, should be within scope. Please justify the exclusion of this component.

Draft Response: ICI enters the ANO-2 RV via the closure head, through ICI nozzles and flange adapters (p. 2.3-9).

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI 2.3.1-2-7

UFSAR Figure 4.2-14 In-Core Instrument Nozzle indicates that many parts which are not within the scope of license renewal. Why are they excluded?

Draft Response: All parts which support the pressure boundary are included in scope (nozzle, adapter, clamp, clamp nuts and studs, spacer sleeve, and drive nut).

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI 2.3.1-2-8

Are the instrument isolation valve bodies, which act as pressure boundary in the event of a leak in the In-Core Instrumentation System, within the scope of license renewal?

Draft Response: No isolation valves on the ANO-2 ICI system.

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI 2.3.1-3-1

Why are Shutdown Cooling Inlet nozzle and safe end excluded from the scope of license renewal?

Draft Response: Shutdown cooling returns to the RCS via the safety injection nozzles. Refer to LRA drawing corresponding to P&ID M-2230.

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI 2.3.1-3-2

Reactor Coolant Pumps support lugs were not identified as within the scope of license renewal. Also in UFSAR 5.5.1.4.2.3, RCP supports, four vertical spring-type hangers, and two horizontal hydraulic snubbers are mentioned. The above components provide structural support and could meet the criteria identified in 10 CFR 54.4(a)(2). Therefore, the components may be within the scope of license renewal. Please provide justification for their exclusion or submit an AMR for the stated component.

Draft Response: None provided.

Status: The applicant's response demonstrated an understanding of the question. This RAI was re-numbered as RAI 2.3.1-3-1 and submitted formally.

Draft RAI 2.3.1-4-1

Why are the pressurizer support assembly and pressurizer welds excluded?

Draft Response: The PZR support skirt is located on p. 2.3-17.

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI 2.3.1-4-2

P&ID LRA-M-2230 indicates that all the pressurizer nozzles are within the scope of license renewal. However, it is not clear that all the thermal sleeves are within the scope of license renewal. In the table only 2 are included. Why are the others excluded?

Draft Response: The other nozzles on the PZR (safety nozzles) do not include thermal sleeves. Only the surge line and spray line nozzles have thermal sleeves at ANO-2.

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI 2.3.1-5-1

Steam Generators: Why are the internal feedwater distribution ring (elevated feed ring) and the thermal sleeve connecting the header and the nozzle excluded from the scope of license renewal? Please provide justification for their exclusion or submit an AMP for the stated components.

Draft Response: The internal feedwater distribution ring and piping do not support any intended function (pressure boundary) of the SG. The FW thermal sleeves are located on p. 2.3-19 of the LRA.

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI 2.3.1-5-2

Support pads were not identified in the LRA as within the scope of license renewal. The above components provide structural support and could meet the criteria identified in 10 CFR 54.4(a)(2). Therefore, the components should be within the scope of license renewal. Please provide justification for their exclusion or submit an AMP for the stated components.

Draft Response: None provided.

Status: The applicant stated that the question was clear. This RAI was submitted formally.

Draft RAI 2.3.1-5-3

Seismic lugs were not identified in the LRA as within the scope of license renewal. The above components provide structural support and could meet the criteria identified in 10 CFR 54.4(a)(2). Therefore, the component should be within the scope of license renewal. Please provide justification for their exclusion or submit an AMP for the stated components.

Draft Response: The SG seismic lugs are called key brackets and snubber lugs at ANO-2 and are located on p. 2.3-19 of the LRA.

Status: The applicant's response demonstrated an understanding of the question. This RAI was submitted formally.

Draft RAI P&IDs-1

On P&ID LRA-M-2231, Sheet 1, the Charging Pump Seal Lubrication System is not shown as in of the scope of license renewal. Is this system essential for the operation of the CVCS pumps which are within scope? Please justify the exclusion of this component.

Draft Response: None provided.

Status: The applicant stated that the Charging Pump Seal Lubrication System did not serve an intended function. This explanation clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

Draft RAI P&IDs-2

On P&ID LRA-M-2236, Sheet 1, shows a series of screens and supports completely cover the Containment Sump. Also, grading cages and partition plates are in the sump. Are they within the scope of license renewal? Please provide justification for their exclusion or submit an AMP for the stated components.

Draft Response: None provided.

Status: The applicant stated that the question was clear. This RAI was re-numbered as RAI P&ID-1 and submitted formally.

Draft RAI P&IDs-3

On P&ID LRA-M-2238, Sheet 1, the lube oil tank for the reactor cool pump (RCP) is not shown in the drawing. Pursuant to 10 CFR 50, Appendix R, Section III O, the RCP lube oil collection subsystem is designed to collect oil from the RCPs and drain it to a collection tank to prevent a fire in the Containment Building during normal plant operations. The staff believes that the subsystem and the tank may be within the scope of license renewal and subject to aging management. However, it appears that the subject components were not identified. Please provide justification for the exclusion or submit an AMP for the stated components.

Draft Response: The reactor coolant pump oil collection system is shown on LRA drawing LRA M-2233 sheet 1 and is described in LRA section 2.3.3.6.

Status: The applicant clarified the staff's understanding, and the information was considered background information. This RAI was withdrawn.

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