NRR-DMPSPEm Resource

From: Wong, Albert
Sent: Thursday, April 12, 2018 2:04 PM
To: Mr. William F. Maguire
Cc: RidsNrrDmlr Resource; RidsNrrDmlrMrpb Resource; RidsNrrPMRiverBend Resource; RidsOgcMailCenter Resource; Wilson, George; Donoghue, Joseph; Sayoc, Emmanuel; Wong, Albert; Lopez, Juan; Lehman, Bryce; Thomas, George; Manoly, Kamal; Oesterle, Eric; Alley, David; Martinez Navedo, Tania; Bailey, Stewart; Wittick, Brian; Ruffin, Steve; Bloom, Steven; Regner, Lisa; Turk, Sherwin; Sowa, Jeffrey; Parks, Brian; Pick, Greg; Kozal, Jason; Young, Cale; Young, Matt; Werner, Greg; McIntyre, David; Dricks, Victor; Moreno, Angel; Burnell, Scott; 'Broussard, Thomas Ray'; Lach, David J; SCHENK, TIMOTHY A; 'Coates, Alyson'
Subject: SUMMARY OF PUBLIC TELEPHONE CONFERENCE CALL HELD ON MARCH 27, 2018, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND ENTERGY AND FINAL REQUESTS FOR ADDITIONAL INFORMATION FOR THE SAFETY REVIEW OF THE RIVER BEND STATION, UNIT 1 LICENSE RENEWAL APPLICATIO
Attachments: RAI Set 13 Enclosures_Participants & Final 2 FU RAIs.pdf

Docket No. 50-458

Dear Mr. Maguire:

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Operations, Inc. (the applicant) held a public telephone conference call on March 27, 2018, to discuss and clarify the applicant's response (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18038B475) to the staff's requests for additional information, RAIs 4.6-1 and 4.6-2 (TRP 63 Fatigue Analysis) contained in RAI Set 6, (ADAMS Accession No. ML17361A396). The telephone conference was held at the request of NRC to clarify the applicant's response to the staff's original RAIs. A second clarification telephone call was held on April 11, 2018 between the staff and the applicant to further discuss the response.

Enclosure 1 provides a listing of the participants of the March 27 conference call. Enclosure 2 includes the two final follow-up RAIs 4.6-1a and 4.6-2a.

Dave Lach of your staff agreed to provide a response to the final RAIs with 30 days from the date of the April 11, 2018 telephone call. The NRC staff will place a copy of this summary in ADAMS. The applicant had an opportunity to comment on this summary.

If you have any questions, please contact me by telephone at 301-415-4084 or via e-mail at Emmanuel.Sayoc@nrc.gov.

Sincerely,

Emmanuel Sayoc, Project Manager
License Renewal Project Branch
Division of Materials and License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures:

1. List of Participants for the March 27, 2018 Telephone Call
2. Final RAIs 4.6-1a and 4.6-2a

OFFICE	PM:MRPB:DMLR	BC: MRPB:DMLR	PM:MRPB:DMLR
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DATE	03/27/2018	03/29/2018	04/12/2018

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Subject: SUMMARY OF PUBLIC TELEPHONE CONFERENCE CALL HELD ON MARCH 27, 2018, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND ENTERGY AND FINAL REQUESTS FOR ADDITIONAL INFORMATION FOR THE SAFETY REVIEW OF THE RIVER BEND STATION, UNIT 1 LICENSE RENEWAL APPLICATIO
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RAI Set 13 Enclosures_Participants & Final 2 FU RAIs.pdf	138106	

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Priority: Standard
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Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

ENCLOSURE 1 LIST OF PARTICIPANTS FOR THE MARCH 27, 2018 TELEPHONE CONFERENCE CALL

PARTICIPANTS	AFFILIATIONS
Brian Wittick	U.S. Nuclear Regulatory Commission (NRC)
Eric Oesterle	NRC
Juan Lopez	NRC
Emmanuel Sayoc	NRC
Albert Wong	NRC
Garry Young	Entergy Nuclear Operations Inc. (Entergy)
Alan Cox	Entergy
Dave Lach	Entergy
Mark Spinelli	Entergy
Stan Batch	Entergy
Alyson Coates	Entergy
Kam Molavi	Entergy
Herb Rideout	Entergy
Jim Morgan	Entergy
Randy Gauthreaux	Entergy
Lisa Borel	Entergy
Mark Sandusky	Entergy
Mike Cooper	Entergy
Neal Graham	GE-H
Marvin Lewis	Member of Public

ENCLOSURE 2 FINAL RAIS 4.6-1A AND 4.6-2A AFTER THE TELEPHONE CALL

RAI 4.6-1a

Background
Section 4.6 of the SRP-LR states that if a plant's code of record requires a fatigue parameter evaluation (fatigue analysis or fatigue waiver), then this analysis may be a time-limited aging analyses (TLAA) and must be evaluated in accordance with 10 CFR 54.21(c)(1) to ensure that the effects of aging on the intended functions are adequately managed for the period of extended operation.

The current licensing basis may include fatigue waiver evaluations that preclude the need for performing CUF analyses of structural components. The ASME Code Section III rules for performing fatigue waiver evaluations for structural components are analogous to those in the Code for performing fatigue waiver evaluations of mechanical components. ASME Code NE-3222.4(d) "Analysis for Cyclic Operations, Vessels Not Requiring Analysis for Cyclic Operation," provides for a waiver from fatigue analysis when certain cyclic loading criteria are met.

RBS USAR Section 3.8.2.4.1 states: "Fatigue analysis requirements for the steel containment cylinder and dome are evaluated in accordance with the requirements of ASME Boiler and Pressure Vessel Code Section III, Division I, Subsection NE."

In its response to RAI 4.6-1, dated February 6, 2018, the applicant stated, in part, the following:

> "*[USAR] Table 3.8-1 indicates that fatigue is considered for operating conditions I(b) , II , III(b) and IV. The free standing SCV cylinder and dome analysis reviews the operating conditions identified in USAR Table 3.8-1 and concludes that fatigue during operating conditions I(b) , II , III(b) and IV does not occur because the containment vessel is free to expand, thereby preventing cyclic loading. Therefore, the freestanding containment vessel and dome were not analyzed for fatigue and there are no cycle limits or cumulative usage factors."*

Issue
It is not clear if the evaluation performed for the freestanding containment vessel and dome components constitutes a fatigue waiver that relies on time dependent cycles, and whether they were evaluated and dispositioned in accordance with 10 CFR 54.21(c)(1). RBS USAR Section 3.8.2.4.1 states that the containment cylinder and dome were evaluated in accordance with the requirements of ASME Code Section III, Division I, Subsection NE, however it is not clear if and how the conditions under ASME code Subsection NE-3222.4(d) were used to waive the requirements of a fatigue analysis for the freestanding containment vessel and dome. The staff notes that the current licensing basis may include fatigue waiver evaluations that preclude the need for performing CUF analyses of structural components which may be a TLAA and must be evaluated. The staff also notes that the statement "containment vessel is free to expand, thereby preventing cyclic loading" does not appear consistent with regard to fatigue or fatigue waiver considerations of the ASME code, Subsection NE, and cannot be concluded from USAR Table 3.8-1. Also LRA Table 3.5-1, item 27, doesn't appear to manage cracking due to cyclic loading for these components if no CLB fatigue or fatigue waiver analysis exists.

Request
1. Clarify if an evaluation was performed in accordance with ASME Code, Section III, Subsection NE-3222.4(d) to evaluate the fatigue analysis requirements for the

freestanding containment vessel and dome. If an evaluation was performed, state the assumed number of cycles and limits. Otherwise, clarify what requirements of the ASME Code Section III, Division I, Subsection NE were followed to evaluate the fatigue analysis requirements for the steel containment cylinder and dome (as described in RBS USAR Section 3.8.2.4.1).

2. State the disposition in accordance with 10 CFR 54.21(c)(1) for this evaluation.
3. If there is no CLB fatigue analysis or fatigue waiver analysis for these components, clarify if cracking due to cyclic loading will be managed by the GALL Report AMPs XI.S1 and XI.S4 in accordance with SRP-LR Table 3.5-1, item 27, by crediting appropriate leak rate tests that can detect such cracking. If the GALL Report recommendations will not be followed, describe the proposed method to manage the aging effect of cracking due to cyclic loading for the containment vessel and dome, and provide the technical basis for concluding that the proposed method is adequate to manage the associated aging effect so that the intended function(s) will be maintained consistent with the CLB for the period of extended operation, in accordance with 10 CFR 54.21 (a)(3).

RAI 4.6-2a

Background
Section 4.6 of the SRP-LR states that if a plant's code of record requires a fatigue parameter evaluation (fatigue analysis or fatigue waiver), then this analysis may be a time-limited aging analyses (TLAA) and must be evaluated in accordance with 10 CFR 54.21(c)(1) to ensure that the effects of aging on the intended functions are adequately managed for the period of extended operation.

The current licensing basis may include fatigue waiver evaluations that preclude the need for performing CUF analyses of structural components. The ASME Code Section III rules for performing fatigue waiver evaluations for structural components are analogous to those in the Code for performing fatigue waiver evaluations of mechanical components. ASME Code NE-3222.4(d) "Analysis for Cyclic Operations, Vessels Not Requiring Analysis for Cyclic Operation," provides for a waiver from fatigue analysis when certain cyclic loading criteria are met.

In its response to RAI 4.6-2, dated February 6, 2018, the applicant stated, in part, the following:

- For the personnel airlock, drywell airlock, drywell combination door/hatch assembly components: "*The evaluation concluded that analysis for cyclic operation was not necessary. No cumulative usage factors were calculated. The evaluation assumed 120 plant startup cycles. LRA Table 4.3-1 has a limiting value of 168 for plant startups, but because the allowable number of cycles for this ASME Section NE 3222.4(d) criterion was 2,800 cycles, the increase in cycles shown in LRA Table 4.3-1 does not impact the conclusion that a fatigue analysis is unnecessary."*
- For the equipment hatch component: "*The equipment hatch calculation determined a fatigue analysis was not necessary after considering loads from OBE, SSE, LOCA, SRV lifts and heatups because the loads were very low. Cumulative usage factors were not calculated*," and
- For the drywell head component: "*The drywell head calculation determined the alternating stresses from earthquakes and SRV loads were so low that the allowable number of cycles were infinite (CUF- O).*"

Issue
It is not clear if the evaluation performed under ASME Section NE 3222.4(d) criterion for the personnel airlock, drywell airlock, and the drywell combination door/hatch assembly constitutes a fatigue waiver that relies on time dependent cycles, and whether they were evaluated and dispositioned in accordance with 10 CFR 54.21(c)(1). The staff notes that the current licensing basis may include fatigue waiver evaluations that preclude the need for performing CUF analyses of structural components which may be a TLAA and must be evaluated.

Additionally, it is not clear if the equipment hatch and the drywell head were evaluated in accordance with the requirements of ASME Code Section III, Division I, Subsection NE-3222.4(d) to waive the requirements of a fatigue analysis, and what the disposition is in accordance with 10 CFR 54.21(c)(1) for the evaluations.

Request
1. State the disposition, in accordance with 10 CFR 54.21(c)(1), for the personnel airlock, drywell airlock, and the drywell combination door/hatch assembly evaluations.

2. Clarify if an evaluation was performed in accordance with ASME Code, Section III, Subsection NE-3222.4(d) to evaluate the fatigue analysis requirements for the equipment hatch and the drywell head.
    a. If an evaluation was performed state the assumed number of cycles and limits. Otherwise, clarify what requirements of the ASME Code were followed to evaluate the fatigue analysis requirements for the equipment hatch and the drywell head, and clarify whether these evaluations are based on time dependent cycles.
    b. State the disposition, in accordance with 10 CFR 54.21(c)(1), for the equipment hatch and drywell head evaluations.