



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

May 25, 2018

Mr. William F. Maguire
Site Vice President
River Bend Station, Unit 1
Entergy Operations, Inc.
5485 U.S. Highway 61 N
St. Francisville, LA 70775

SUBJECT: SUMMARY OF PUBLIC TELEPHONE CONFERENCE CALL HELD ON
APRIL 18, 2018, BETWEEN THE U.S. NUCLEAR REGULATORY
COMMISSION AND ENTERGY REGARDING THE NEED FOR ADDITIONAL
INFORMATION TO SUPPORT THE RIVER BEND STATION, UNIT 1 LICENSE
RENEWAL APPLICATION REVIEW (CAC NO. MF9757)

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 April 18, 2018, to discuss the applicant's responses to previously issued Requests for Additional Information (RAIs). The telephone conference was held at the request of NRC to clarify the applicant's responses to these RAIs.

Following the phone call, with the clarification provided by the applicant, the staff believed that it had sufficient information to proceed with the safety review without additional information requested for four topics (RAIs B.1.10-2, 3.1.2.1.2-1, 4.3.1-1 and 4.3.2-1). In addition, the staff will issue follow-up RAIs on three topics: RAIs 3.6.2.2.2-1, 4.3.1-2, and 4.7.3-1. Finally the applicant will provide supplemental information to one topic (RAI 3.2.2.3.2-1a). Enclosure 1 lists the participants; Enclosure 2 includes the chronology of these RAIs and the corresponding responses from the applicant, and Enclosure 3 summarizes the staff's concerns related to these RAIs and the path forward. For RAI 3.2.2.3.2-1a, Mr. Dave Lach of your staff agreed to provide supplemental information to the original responses within 30 days from the date of the conference call. For the follow-up RAIs stemming from 3.6.2.2.2-1, 4.3.1-2, and 4.7.3-1, Mr. Dave Lach agreed to provide responses within 30 day from the receipt of the follow-up RAIs. 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,

/RA Albert Wong for/

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
2. List of Topics Related to Previously Issued RAIs
3. Summary of the Topics Discussed

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DATE	5/24/2018	5/24/2018	5/25/18	5/25/18

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LIST OF PARTICIPANTS FOR THE APRIL 18, 2018
TELEPHONE CONFERENCE CALL

PARTICIPANTS

AFFILIATIONS

Steve Bloom	U.S. Nuclear Regulatory Commission (NRC)
Steve Ruffin	NRC
Eric Oesterle	NRC
Jim Medoff	NRC
Jim Gavula	NRC
Aaron Mink	NRC
Mohammad Sadollah	NRC
Emmanuel Sayoc	NRC
Albert Wong	NRC
Garry Young	Entergy Nuclear Operations Inc. (Entergy)
Dave Lach	Entergy
Alan Cox	Entergy
Dave Wootten	Entergy
Steve McKissack	Entergy
Stan Batch	Entergy
Lori Potts	Entergy
Mark Spinelli	Entergy
Jim Morgan	Entergy
Lisa Borel	Entergy
Randy Gauthreaux	Entergy
Mark Sandusky	Entergy
Mike Cooper	Entergy
Steve Liu	GEH

CHRONOLOGY OF RAIs AND RAI RESPONSES DISCUSSED DURING
THE APRIL 18, 2018 TELEPHONE CONFERENCE CALL

ORIGINAL RAI#	RAI Set #	Date of the Original RAI Issued	Date of Applicant's Response
3.2.2.3.2-1a Generic Filtration	12	March 6, 2018 (ML18065A213)	April 3, 2018 (ML18093A099)
B.1.10-2 BWR Vessel Internals	10	February 8, 2018 (ML18043A008)	March 26, 2018 (ML18087A188)
3.1.2.1.2-1 BWR Vessel Internals	10	February 8, 2018 (ML18043A008)	March 26, 2018 (ML18087A188)
4.3.1-1 Class 1 Fatigue	10	February 8, 2018 (ML18043A008)	March 26, 2018 (ML18087A188)
4.3.1-2 Class 1 Fatigue	10	February 8, 2018 (ML18043A008)	March 26, 2018 (ML18087A188)
4.3.2-1 Non-Class 1 Fatigue	10	February 8, 2018 (ML18043A008)	March 26, 2018 (ML18087A188)
4.7.3-1 Fluence Effect for Reactor Vessel Internals	10	February 8, 2018 (ML18043A008)	March 26, 2018 (ML18087A188)
3.6.2.2.2-1 High Voltage Insulators	8	January 22, 2018 (ML18022A941)	February 20, 2018 (ML18051A531)

SUMMARY OF THE TOPICS DISCUSSED DURING THE APRIL 18, 2018
TELEPHONE CONFERENCE CALL

The following topics related to the applicant's RAI responses were discussed with the applicant during the call. The conclusions of these topics are noted in the parenthesis.

Topic 1 RAI 3.2.2.3.2-1a Generic Filtration

The applicant revised LRA Sections A.1.34 and B.1.34 to include additional inspection activities in the Periodic Surveillance and Preventive Maintenance Program. However, no new AMR items are added to LRA Tables 3.2.2-2, 3.2.2-3, 3.2.2-4, and 3.2.2-5 to reflect these changes. The LRA is not adequate without additional new AMR items to the aforementioned tables. **(Resolution: The applicant stated that they would supplement their previous response within 30 days from the date of the call.)**

Topic 2 RAI B.1.10-2 BWR Vessel Internals

Scoping of standby liquid control system for portions of the standby liquid control (SLC) lines located inside of the reactor vessel (matter is being reviewed with DSS/SXRB) – use of the applicant's basis for using BWRVIP-27-A as the sole basis for resolving the issue raised in RAI B.1.10-2. **(Resolution: The applicant provided sufficient clarification that allowed the staff to conclude that there is sufficient information to proceed with the safety review without additional information requested.)**

Topic 3 RAI 3.1.2.1.2-1 BWR Vessel Internals

Use of a one-time inspection for managing loss of material in reactor vessel internals. The applicant's basis provided in the response simply restates basis in original LRA, and the applicant relies only on the fact the AMR Item IV.C1.RP-158 (an AMR item for Class 1 piping components) exists in the GALL Revision 2 report. The applicant does not provide adequate demonstration that IV.C1.RP-158 is an acceptable alternative AMR item to apply to aging management of BWR RVI components. **(Resolution: The applicant provided sufficient clarification that allowed the staff to conclude that there is sufficient information to proceed with the safety review without additional information requested.)**

Topic 4 RAI 4.3.1-1 Class 1 Fatigue

For listed reactor pressure vessel (RPV) components that have been analyzed with a CUF analysis, why does the response indicate that the CUF values were only based on an assessment of heatup and cooldown transients. That is not consistent with the transients that are listed as assumed transients for RPV component CUF analyses in USAR Section 3.9B. **(Resolution: The applicant provided sufficient clarification that allowed the staff to conclude that there is sufficient information to proceed with the safety review without additional information requested.)**

Topic 5 RAI 4.3.1-2 Class 1 Fatigue

For reactor vessel internal (RVI) components that have been analyzed with a CUF – the applicant listed BWRVIP reports for aging management of the component under 10 CFR 54.21(c)(1)(iii). The recommendations of each individual report may not include inspection of the RVI component identified as having a CUF analysis. For example, BWRVIP-18 cannot be

credited as the basis for components in the core plate assembly because the BWRVIP report does not recommend inspection of BWR-6 core plates or any of the components in the core plate assembly. **(Resolution: The staff plans to issue a follow-up RAI on this topic.)**

Topic 6 RAI 4.3.2-1 Non-Class 1 Fatigue

Question on LRA Section 4.3.2.1 – Scope/list of non-Class 1 systems that have been analyzed with a design basis cycle-dependent expansion stress and maximum allowable stress range reduction analysis based only on an assessment of plant heatups and cooldowns. **(Resolution: The applicant provided sufficient clarification that allowed the staff to conclude that there is sufficient information to proceed with the safety review without additional information requested.)**

Topic 7 RAI 4.7.3-1 Fluence Effect for Reactor Vessel Internals

Regarding Part 4 of the RAI: For reactor vessel internal (RVI) components that were projected to exceed the fluence threshold values, the applicant indicated that these components must meet additional strain criteria. The applicant's RAI response did not describe how the strain criteria were derived. Therefore, the staff would like to discuss the applicant's additional strain requirements and the calculated projected strain values for each RVI component compared to these additional strain criteria. **(Resolution: The staff plans to issue a follow-up RAI on this topic.)**

Topic 8 RAI 3.6.2.2.2-1 High Voltage Insulators

Regarding the applicant's response for "Material" and "Aging Effects Requiring Management," the staff identified missing relevant information for Polymer High-voltage Insulators. These are identified in the listings below. The further evaluation discussion does not address the missing items. The staff needs to discuss these items and the applicant's justification for conclusion that no aging management program is required.

Missing Material:

- Epoxy
- Silicone Gel
- Sealant
- Ductile Iron

Missing Aging Effects Requiring Management:

- Stress Corrosion Cracking (SCC) of glass fibers
- Swelling of insulator layer due to chemical contamination
- SCC of glass fibers
- Sheath wetting caused by chemicals absorbed by oil from SIR compound
- Brittle fracture of rods resulting from discharge activity/flashunder/flashover
- Chalking and crazing of resulting in contamination, arcing, and flashover
- Water penetration followed by electrical failure
- Bonding failure at rod-sheathing interface
- Sheath layer damage from birds and rodents
- Water ingress through end fitting causing corrosion and fracture of glass fibers

Polymer insulators have shown to have unique failure modes with little advance indications. In addition, contamination can be worse for SIR (compared to porcelain insulators) due to silicone oil, especially in late stages of service life. (**Resolution: The staff plans to issue a follow-up RAI on this topic.**)