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

January 3, 2013

LICENSEE: Entergy Operations, Inc.

FACILITY: Grand Gulf Nuclear Station

SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON SEPTEMBER 28, 2012, BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION AND ENTERGY OPERATIONS, INC., CONCERNING REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE GRAND GULF NUCLEAR STATION LICENSE RENEWAL APPLICATION (TAC. NO. ME7493)

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Operations, Inc., held a telephone conference call on September 28, 2012, to discuss and clarify the staff's requests for additional information (RAIs) concerning the Grand Gulf Nuclear Station license renewal application. The telephone conference call was useful in clarifying the intent of the staff's RAIs.

Enclosure 1 provides a listing of the participants and Enclosure 2 contains a listing of the RAIs discussed with the applicant, including a brief description on the status of the items.

The applicant had an opportunity to comment on this summary.

Nathaniel Ferrer, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures:
As stated

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TELEPHONE CONFERENCE CALL
GRAND GULF NUCLEAR STATION
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS
SEPTEMBER 28, 2012

PARTICIPANTS	AFFILIATIONS
Nate Ferrer	U.S. Nuclear Regulatory Commission (NRC)
Seung Min	NRC
Pat Purtscher	NRC
Ching Ng	NRC
Ted Ivy	Entergy Operations, Inc. (Entergy)
Andy Taylor	Entergy
Alan Cox	Entergy
Stan Batch	Entergy
Jacque Lingenfelter	Entergy
Ernest Rufus	Entergy

ENCLOSURE 1

REQUESTS FOR ADDITIONAL INFORMATION (SET 38)

LICENSE RENEWAL APPLICATION
SEPTEMBER 28, 2012

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Operations, Inc., held a telephone conference call on September 28, 2012, to discuss and clarify the following requests for additional information (RAIs) concerning the license renewal application (LRA).

Draft RAI 4.3-5b

Background. In its response to follow-up RAI 4.3-5a dated September 2, 2012, the applicant provided a table that lists its non-Class 1 expansion joints. For several of these expansion joints under the evaluation column the applicant provided the usage factor associated with the design cycles for the non-Class 1 expansion joints. These expansion joints include the standby liquid control (at the pump discharge), standby diesel generators (turbocharger water outlets), high pressure core spray (standby service water supply to diesel, diesel air start and diesel fuel oil) and the leakage detection and controls system (exhaust blower inlet). As part of the evaluation, the applicant stated that based on the usage factor associated with the design cycles these expansion joints are acceptable for many more cycles than specified.

Furthermore, for several other expansion joints under the design cycles column the applicant provided the number of cycles for which the specific expansion joint was designed. In addition, under the evaluation column the applicant provided the number of cycles that a particular expansion joint was "qualified" for. These expansion joints include the standby liquid control (at tank outlet and pump inlets and at test tank), high pressure core spray (diesel exhaust) and compressed air (air accumulators). As part of the evaluation, the applicant stated that these expansion joints were qualified or determined to a number of cycles that is greater than the design cycles; therefore, the expansion joints are acceptable for many more cycles than specified.

Issue. Although the expansion joints may have a "small" usage factor when compared to the design limit of 1.0, the staff noted that a "small" usage factor does not support the disposition that the analysis remains valid for the period of extended operation (i.e., 10 CFR 54.21(c)(1)(i)). Similarly, the staff noted a component being "qualified" for many more cycles compared to the design cycles does not support the disposition that the analysis, which is based on the number of design cycles, remains valid for the period of extended operation (i.e., 10 CFR 54.21(c)(1)(i)).

In order for the TLAA of these expansion joints to remain valid for the period of extended operation in accordance with 10 CFR 54.21(c)(1)(i), the applicant must demonstrate that the number of "design cycles" used in the current design analysis will not be exceeded after 60 years of operation (e.g., claiming a design cycle limit of 1200 thermal cycles for the high pressure core spray diesel exhaust joint without demonstrating that plant operation would not exceed this 1200 cycles is not an adequate justification under 10 CFR 54.21(c)(1)(i)).

In addition, Title 10 Section 54.21(a)(1) of the Code of Federal Regulations (10 CFR 54.21(a)(1)) requires, in part, that for those systems, structures, and components (SSCs) within the scope of license renewal as delineated in 10 CFR 54.4, the applicant identify and list those structures and components subject to an AMR. The staff noted that, at least for the expansion

joints in the standby liquid control system and high pressure core spray system, the LRA does not provide AMR results for these expansion joints subject to "cracking-fatigue."

Request.

a. Supplement RAI 4.3-5a response to provide, for non-Class 1 expansion joints discussed above, adequate justification for the disposition of 10 CFR 54.21(c)(1)(i), by demonstrating that the design number of cycles used in the original analysis will not be exceeded during the period of extended operation (i.e., cycles from plant operation will not exceed the number of design cycles).

b. Provide the AMR results for all non-Class 1 expansion joints in accordance with 10 CFR 54.21(a)(1) or justify why it is not necessary to provide the AMR results.

Discussion: The applicant stated that it was unclear about the reference in the 3rd paragraph of the issue section. The staff's concern was specific to the AMR results. Additionally, the applicant stated that request (a) did not allow for the possibility of a revision of the TLAA disposition. The staff will reword the 3rd paragraph of the issue section and the request as follows:

> The staff noted that for the expansion joints in the standby liquid control system and high pressure core spray system, the license renewal application (LRA) does not provide AMR results for these expansion joints subject to "cracking-fatigue."

Request.

a. Supplement RAI 4.3-5a response to provide, for non-Class 1 expansion joints discussed above, adequate justification for the disposition of 10 CFR 54.21(c)(1)(i), by demonstrating that the design number of cycles used in the original analysis will not be exceeded during the period of extended operation (i.e., cycles from plant operation will not exceed the number of design cycles). Alternatively, revise the TLAA disposition and include adequate justification.

b. Provide the AMR results for all non-Class 1 expansion joints in accordance with 10 CFR 54.21(a)(1) or justify why it is not necessary to provide the AMR results.

The staff will issue the revised question as a formal RAI.

Draft RAI B.1.9-4a

Background. By letter dated August 15, 2012, the applicant responded to RAI B.1.9-4 that addresses the applicant's recent operating experience related to an indication in one of the residual heat removal system to reactor pressure vessel nozzles (N06B-KB weld).

In its response, the applicant stated that due to industry concerns with cracking in dissimilar metal welds, the industry committed to an accelerated inspection program and details of this program are provided in BWRVIP-222, "Accelerated Inspection Program for BWRVIP-75-A Category C Dissimilar Metal Welds Containing Alloy 182," July 2009. The applicant also stated that during 2012, the nozzle discussed in RAI B.1.9-4 received extensive weld crown reduction and surface preparation which enabled the examination to detect the subject flaw.

Issue. It is not clear to the staff how the inspection schedule for Category C dissimilar metal welds was accelerated and what guidance document is used for the inspection method. In addition, the LRA does not identify the implementation of the accelerated inspections, which are specified in BWRVIP-222, as an enhancement to the existing BWR Stress Corrosion Cracking Program.

The staff is also not clear if the applicant's program includes any other weld that has limited inspection coverage as was the case with Weld N06B-KB prior to the weld crown reduction.

Request.

a. Describe how the inspection schedule for Category C dissimilar metal welds was accelerated. As part of the response, clarify whether the inspection schedule in the accelerated inspections meets or is more conservative than the inspection schedule that would be used in accordance with BWRVIP-75-A.

   In addition, describe the inspection method and the reference of the guidance document for the inspection method.

b. Justify why the LRA does not identify the implementation of the accelerated inspection program, which is described in BWRVIP-222, as an enhancement to the existing BWR Stress Corrosion Cracking Program.

c. Clarify whether any other welds in the scope of the program have limited inspection coverage as was the case with Weld N06B-KB prior to the weld crown reduction. If so, justify why the limited inspection coverage is acceptable to manage cracking of such welds.

Discussion: The applicant stated that the question is clear. The staff will issue the question as a formal RAI.

Draft RAI B.1.11-6

Background. By letter dated August 15, 2012, the applicant responded to RAI B.1.9-2a that, in part, addresses the applicant's aging management for the stainless steel and nickel alloy thermal sleeves and thermal sleeve extensions of reactor vessel nozzles (recirculation inlet, core spray inlet, and RHR/LPCI nozzles).

In its response, the applicant amended the LRA and indicated that the BWR Vessel Internals Program, along with the Water Chemistry Control – BWR Program, is credited to manage cracking due to stress corrosion cracking (SCC) and intergranular stress corrosion cracking (IGSCC) in the thermal sleeves and thermal sleeve extensions of the reactor vessel nozzles. The applicant also stated the recirculation inlet, core spray inlet, and RHR/LPCI nozzles are in part, formed by the internal leg of the Y-shaped safe ends for those nozzles.

As described in Appendix C of the LRA, the applicant's response to Action Item No. 5 of BWRVIP-42-A states that the BWRVIP has developed strategies to ensure the integrity of inaccessible welds [associated with the LPCI nozzle and thermal sleeve]. The applicant also stated that these strategies are included in Section 3 of BWRVIP-42, Revision 1 and it has committed to programs described as necessary in the BWRVIP reports to manage the effects of aging during the period of extended operation.

the inaccessible thermal sleeve welds of the LPCI nozzle and other reactor vessel nozzles as applicable.

The staff also needs additional information to clarify how the applicant will inspect the thermal sleeves and thermal sleeve extensions. In case inspections are not performed on the thermal sleeve components, leakage analyses are necessary to ensure that the intended functions of the thermal sleeve components are adequately maintained in a consistent manner with the guidance in Section 3.2.4 of BWRVIP-18-A.

Request.

a. Clarify why the applicant's AMR line items for the thermal sleeve components in LRA Table 3.1.2-1 do not include the thermal sleeve and thermal sleeve extension of the reactor vessel feedwater nozzle.
b. Describe the "strategies" in BWRVIP-42, Revision 1 to clarify how the implementation of the strategies will manage cracking of the inaccessible thermal sleeve components of the LPCI nozzle and other reactor vessel nozzles as applicable.
c. If the applicant's program includes leakage analyses to manage cracking of the thermal sleeve components (e.g., for inaccessible locations), describe the results of the leakage analyses to demonstrate that cracking of the thermal sleeve components does not affect the intended functions of these components.
d. If the applicant's program includes inspections to manage cracking of the thermal sleeve components, describe the method and frequency of the inspections to demonstrate the adequacy of the inspections. As part of the response, clarify whether any of the thermal sleeve welds of the recirculation inlet, core spray, RHR/LPCI and feedwater nozzles can be examined using ultrasonic testing that is applied on the outer surface of the associated piping and safe ends.
e. Ensure that the LRA is consistent with the response.

Discussion: The applicant stated it was unclear how requests (b)–(d) were related. The staff noted that requests (c) and (d) were additional clarification questions related to request (b) and will reword the request section as follows:

Request.

a. Clarify why the applicant's AMR line items for the thermal sleeve components in LRA Table 3.1.2-1 do not include the thermal sleeve and thermal sleeve extension of the reactor vessel feedwater nozzle.
b. Describe the "strategies" in BWRVIP-42, Revision 1 to clarify how the implementation of the strategies will manage cracking of the inaccessible thermal sleeve components of the LPCI nozzle and other reactor vessel nozzles as applicable. Include the following in the description, as applicable:
    1. If the program includes leakage analyses to manage cracking of the thermal sleeve components (e.g., for inaccessible locations), describe the results of the leakage analyses to demonstrate that cracking of the thermal sleeve components does not affect the intended functions of these components.
    2. If the program includes inspections to manage cracking of the thermal sleeve components, describe the method and frequency of the inspections to demonstrate the adequacy of the inspections. As part of the response, clarify whether any of the thermal sleeve welds of the recirculation inlet, core spray, RHR/LPCI and feedwater nozzles can be

3. examined using ultrasonic testing that is applied on the outer surface of the associated piping and safe ends.

c. Ensure that the LRA is consistent with the response.

The staff will issue the revised question as a formal RAI.

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