



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

January 14, 2013

LICENSEE: Entergy Operations, Inc.  
FACILITY: Grand Gulf Nuclear Station  
SUBJECT: SUMMARY OF TELEPHONE CONFERENCE CALL HELD ON OCTOBER 26  
AND NOVEMBER 1, 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 October 26 and November 1, 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.

A handwritten signature in black ink, appearing to read "N. Ferrer", with a long horizontal line extending to the right.

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

Docket No. 50-416

Enclosures:  
As stated

cc w/encls: Listserv

TELEPHONE CONFERENCE CALL  
GRAND GULF NUCLEAR STATION  
LICENSE RENEWAL APPLICATION

LIST OF PARTICIPANTS  
OCTOBER 26 AND NOVEMBER 1, 2012

PARTICIPANTS

AFFILIATIONS

Nate Ferrer	U.S. Nuclear Regulatory Commission (NRC)
Ching Ng	NRC
Bart Fu	NRC
Seung Min	NRC
Jim Medoff	NRC
Bo Pham	NRC
Dan Widrevitz	NRC
Roger Kalikian	NRC
Allen Hiser	NRC
Ted Ivy	Entergy Operations Inc. (Entergy)
Andy Taylor	Entergy
Alan Cox	Entergy
Stan Batch	Entergy
Paul Guinn	General Electric-Hitachi (GEH)
Ed Schrull	GEH
Yuting Rui	GEH
Steve Liu	GEH

## REQUESTS FOR ADDITIONAL INFORMATION (SET 41)

### LICENSE RENEWAL APPLICATION OCTOBER 26 AND NOVEMBER 1, 2012

The U.S. Nuclear Regulatory Commission (NRC or the staff) and representatives of Entergy Operations, Inc., held a telephone conference call on October 26 and November 1, 2012, to discuss and clarify the following requests for additional information (RAIs) concerning the license renewal application (LRA).

#### **Draft RAI 3.0.5-1a**

Background. In its response to RAI 3.0.5-1 dated August 23, 2012, the applicant stated that the programmatic activities used to identify aging issues, evaluate them, and, as necessary, enhance the aging management programs (AMPs) or develop new AMPs are consistent with the guidance in License Renewal Interim Staff Guidance (LR-ISG), LR-ISG-2011-05, "Ongoing Review of Operating Experience."

Issue. The applicant's response does not fully address or is not clear on the extent to which the operating experience review activities are consistent with the further review areas described in LR-ISG-2011-05, Appendix A, Itemized Change No. 7. As such, the staff cannot determine whether the applicant's programmatic activities for the ongoing consideration of operating experience are consistent with the framework described in the LR-ISG.

Request. Respond to the following items:

- a. Indicate whether revisions to NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," are monitored and considered as a source of industry operating experience under the operating experience program (OEP).
- b. The response lists several industry-wide information sources monitored under the OEP (e.g., NRC generic communications and industry event reports). Indicate whether there are written plans and expectations for identifying and processing under the OEP information sources not in this list, when these sources concern industry guidance or standards applicable to aging management.
- c. Describe the high-level code and its definition that will be used in the corrective action program (CAP) to track issues specific only to aging. Indicate whether the entries associated with this code will be periodically reviewed to determine whether trending is necessary and whether any adverse trends will be entered into the CAP for evaluation.
- d. Indicate whether evaluations of aging-related operating experience items are required to take into account and document the consideration of affected plant systems, structures, and components, materials, environments, aging effects, aging mechanisms, AMPs, and the activities, criteria, and evaluations integral to the elements of the AMPs.
- e. When the results of implementing each AMP (i.e., data from inspections, tests, analyses, etc.) meet the acceptance criteria of the particular AMP, indicate whether the results are evaluated to determine whether to adjust the frequency of future inspections, establish new inspections, and adjust or expand the inspection scope.

Describe actions that will be taken when such an evaluation indicates that the effects of aging may not be adequately managed.

- f. Describe training on age-related degradation and aging management for plant personnel responsible for:
- implementing the AMPs,
  - submitting operating experience into the CAP and OEP,
  - screening operating experience under the CAP and OEP,
  - assigning operating experience items for evaluation,
  - evaluating operating experience, and
  - otherwise processing plant-specific and industry operating experience.

Indicate whether this training will occur on a periodic basis and whether there are provisions to accommodate the turnover of plant personnel.

- g. Describe the guidelines specific to age-related degradation and aging management that will be used to report plant-specific operating experience to the industry.

Provide a justification for any inconsistencies with the further review areas described in LR-ISG-2011-05, Appendix A, Itemized Change No. 7. Also, identify any necessary enhancements to existing activities for the ongoing review of operating experience. Provide the schedule for implementing these enhancements and a justification if implementation is later than the date when the renewed operating license is scheduled to be issued, if approved.

In addition, consistent with the responses to the above items, revise the summary description of the ongoing operating experience review activities in UFSAR Section A.0.1.

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

#### **Draft RAI 4.1-4b**

**Background.** In the response to RAI 4.1-4a dated October 2, 2012, the applicant stated that the purpose of the plant-specific flaw tolerance analysis was to establish adequacy of periodic inspection interval. The applicant also stated that the analysis does not need to be identified as a TLAA for the LRA since it does not "involve time-limited assumptions defined by the current operating term." The applicant further stated that the 19.5 years was an output of the analysis.

**Issue.** The staff noted that it is the input to the flaw tolerance analysis that would establish whether the analysis is based on time-limited assumptions defined by the current operating term for the facility. However, the staff noted that this basis claimed in the applicant's response would not be valid if the analysis used the number of transients occurring over a 40-year licensing basis period as the inputs for the plant-specific flaw tolerance analysis. Thus, the staff needed the plant-specific flaw tolerance analysis for the feedwater nozzle to be placed onto the docket for the LRA in order for the staff to verify whether the analysis was based on time-limited assumptions defined by the current operating period.

Request. Provide the plant-specific flaw tolerance analysis discussed in the response to RAI 4.1-4a and justify that the analysis did not involve the use of any time-limited assumptions defined by the current operating term as input, as described in the issue section.

Discussion: The applicant stated that it was unclear if the request was asking for both the analysis and justification. The staff was requesting either adequate justification or the analysis. The staff will reword the request as follows:

Request. Provide the plant-specific flaw tolerance analysis discussed in the response to RAI 4.1-4a or justify that the analysis did not involve the use of any time-limited assumptions defined by the current operating term as input, as described in the issue section.

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

#### **Draft RAI B.1.34-2b**

Background. GALL Report AMP XI.M35 may not be used if a plant has had cracking in its American Society of Mechanical Engineers (ASME) Code Class 1 small-bore piping. In RAIs B.1.34-2 and B.1.34-2a, the staff requested the applicant to describe the review of plant-specific operating experience in order to demonstrate that GGNS has not experienced such cracking.

Issue. The applicant's operating experience review does not demonstrate that GGNS has not experienced cracking in its ASME Code Class 1 small-bore piping.

In RAI B.1.34-2, the staff requested the applicant to describe the methodology for finding potential instances of cracking and to provide a list of the results with a disposition as to whether each potential item concerns cracking of ASME Code Class 1 small-bore piping. In its response dated May 18, 2012, the applicant stated that it reviewed 10 years of condition reports identified through a search of the words "crack," "leak," "fracture," and "spray," but it did not provide a list of the items found through this search with a disposition of each. As discussed in the audit report for aging management programs (ML12137A290), the staff conducted an independent search of the applicant's condition report database. By using these keywords: "cracking," "corrosion," "cyclic," "degradation," "detection," "damage," "flaw," "fatigue," "indication," "inspection," "piping," "rupture," "steel," "stress," "thermal," "through-wall," "weld," and "leak," the staff found several condition reports that could involve potential instances of cracking, but the staff could not determine whether the applicant had evaluated these and other condition reports. Since the applicant has not provided the results and analysis of its own keyword search, the staff cannot determine whether the applicant has adequately reviewed this information. Also, without a justification, it is not clear how a search based on the applicant's four keywords would capture all potential instances of cracking in ASME Code Class 1 small-bore piping due to aging mechanisms such as stress corrosion, cyclical (including thermal, mechanical, and vibration fatigue) loading, or thermal stratification and thermal turbulence. Additionally, in response to RAI B.1.34-2, the applicant stated that it reviewed licensee event reports (LERs); however, it did not describe and justify the methodology used to review these reports to find potential instances of cracking in ASME Code Class 1 small-bore piping.

In RAI B.1.34-2a, the staff took issue with the applicant's condition report search and requested justification for limiting this search to the prior 10-year period of plant operation, which does not

cover the approximate 27-year operating history of the plant. In its response dated September 4, 2012, the applicant indicated that, according to Nuclear Energy Institute (NEI) 95-10, Revision 6, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 – The License Renewal Rule," which is endorsed by NRC Regulatory Guide 1.188, Revision 1, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses," "a review of the prior five to ten years of operating and maintenance history should be sufficient." The staff finds that this is a general recommendation and satisfying it does not completely demonstrate that the plant has not experienced cracking in its ASME Code Class 1 small-bore piping. In response to RAI B.1.34-2a, the applicant also stated that its LER search provides a complete source of operating experience for identification of through-wall cracking of ASME Code Class 1 small-bore piping components because reactor coolant pressure boundary leakage requires submittal of an LER in accordance with 10 CFR 50.73. However, it is not evident to the staff why the reporting criteria of 10 CFR 50.73, given potential changes over the course of the operating period of the plant, would capture all instances of non-through-wall cracking or why these criteria would specifically apply to all ASME Code Class 1 small-bore piping leakage.

Request. Demonstrate applicability of GALL Report AMP XI.M35 by describing the process for and providing the results of the plant-specific operating experience review, which covers the entire operating history of the plant, to show that GGNS has not experienced cracking in its ASME Code Class 1 small-bore piping.

With respect to the condition report review:

- a. Identify the specific keywords used and provide a justification as to why a search based on these keywords would identify all potential instances of cracking in ASME Code Class 1 small-bore piping due to aging mechanisms such as stress corrosion, cyclical (including thermal, mechanical, and vibration fatigue) loading, or thermal stratification and thermal turbulence.
- b. Provide a list of all items found through this search with an explanation for each one as to whether it involves cracking of ASME Code Class 1 small-bore piping.

For the period of time not covered by the prior 10-year condition report search:

- a. Identify and justify the specific sources of information reviewed (e.g., databases or document types).
- b. Describe and justify the process or methodology used to find potential instances of cracking in ASME Code Class 1 small-bore piping.
- c. Describe the items found through this search and provide an explanation as to whether they involve cracking of ASME Code Class 1 small-bore piping.

With respect to the LER review:

- a. Justify why the LER reporting requirements, considering any changes over the course of the operating period of the plant, would capture all instances of non-through-wall cracking and specifically apply to all leakage of ASME Code Class 1 small-bore piping.
- b. Describe and justify the process or methodology used to review the LERs to find potential instances of cracking in ASME Code Class 1 small-bore piping.

- c. Describe the items found through this search and provide an explanation as to whether they involve cracking of ASME Code Class 1 small-bore piping.

Otherwise demonstrate that the effects of cracking in ASME Code Class 1 small-bore piping will be adequately managed for the period of extended operation, for example, through a plant-specific periodic inspection program.

**Discussion:** The applicant stated that it was unclear which items, found through the search, were being referenced in the request section. The staff was referring to items relevant to ASME Code Class 1 small-bore piping. The staff will reword the request section as follows:

**Request.** Demonstrate applicability of GALL Report AMP XI.M35 by describing the process for and providing the results of the plant-specific operating experience review, which covers the entire operating history of the plant, to show that GGNS has not experienced cracking in its ASME Code Class 1 small-bore piping.

With respect to the condition report review:

- a. Identify the specific keywords used and provide a justification as to why a search based on these keywords would identify all potential instances of cracking in ASME Code Class 1 small-bore piping due to aging mechanisms such as stress corrosion, cyclical (including thermal, mechanical, and vibration fatigue) loading, or thermal stratification and thermal turbulence.
- b. Provide a list of all relevant items found through this search with an explanation for each one as to whether it involves cracking of ASME Code Class 1 small-bore piping.

For the period of time not covered by the prior 1 a-year condition report search:

- a. Identify and justify the specific sources of information reviewed (e.g., databases or document types).
- b. Describe and justify the process or methodology used to find potential instances of cracking in ASME Code Class 1 small-bore piping.
- c. Describe the relevant items found through this search and provide an explanation as to whether they involve cracking of ASME Code Class 1 small-bore piping.

With respect to the LER review:

- a. Justify why the LER reporting requirements, considering any changes over the course of the operating period of the plant, would capture all instances of non-through-wall cracking and specifically apply to all leakage of ASME Code Class 1 small-bore piping.
- b. Describe and justify the process or methodology used to review the LERs to find potential instances of cracking in ASME Code Class 1 small-bore piping.

- c. Describe the relevant items found through this search and provide an explanation as to whether they involve cracking of ASME Code Class 1 small-bore piping.

Otherwise demonstrate that the effects of cracking in ASME Code Class 1 small-bore piping will be adequately managed for the period of extended operation, for example, through a plant-specific periodic inspection program.

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

**RAI4.2.4-1**

The U.S. Nuclear Regulatory Commission (NRC or the staff) has identified an issue about Entergy Operations, Inc. (the applicant's disposition of this time-limited aging analysis (TLAA) for the circumferential weld inspection relief. The Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants (SRP-LR) Section 4.2.3.1.4 states that if the applicant indicates that relief from circumferential weld examination will be made under 10 CFR 50.55a(a)(3), the applicant will manage this TLAA in accordance with 10 CFR 54.21 (c)(1)(iii). In contrast, the applicant dispositioned this TLAA in accordance with 10 CFR 54.21 (c)(1)(ii), inconsistent with the SRP-LR. Explain why the TLAA for the circumferential weld inspection relief is dispositioned in accordance with 10 CFR 54.21 (c)(1)(ii). Alternatively, revise the TLAA disposition to be in accordance with 10 CFR 54.21 (c)(1)(iii).

**Discussion:** The applicant stated that the question is clear. The staff will not revise the RAI.

January 14, 2013

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FACILITY: Grand Gulf Nuclear Station

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