



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

July 27, 2012

Mr. Michael Perito
Vice President, Site
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
GRAND GULF NUCLEAR STATION LICENSE RENEWAL APPLICATION
(TAC NO. ME7493)

Dear Mr. Perito:

By letter dated October 28, 2011, Entergy Operations, Inc., submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew the operating license for Grand Gulf Nuclear Station, Unit 1 for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review.

These requests for additional information were discussed with Jeff Seiter, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me by telephone at 301-415-1045 or by e-mail at Nathaniel.Ferrer@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "N. Ferrer", is written over a horizontal line.

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

Docket No. 50-416

Enclosure:
Requests for Additional
Information

cc w/encl: Listserv

GRAND GULF NUCLEAR STATION
LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION SET 29

RAI 2.3.3.12-1a

Background. In its June 22, 2012, response to request for additional information (RAI) 2.3.3.12-1, regarding the fire suppression system associated with the radwaste building, Entergy Operations, Inc. (the applicant) stated that the portions of the fire protection system in the radwaste building include no equipment credited with fire prevention, detection, or mitigation in areas containing equipment important to safe operation of the plant or systems that contain plant components credited for safe shutdown following a fire per 10 CFR 50.48. Therefore, the portions of the fire protection system in the radwaste building perform no intended function for license renewal and are not in the scope and not subject to an aging management review (AMR).

Issues. The U.S. Nuclear Regulatory Commission (NRC) staff finds that the applicant's analysis of fire protection regulations does not completely capture the fire protection systems, structures, and components (SSCs) required for compliance with 10 CFR 50.48. The applicant indicated that the fire suppression systems in question perform no intended function in support of the plant license renewal and, therefore, are excluded from the scope of license renewal and not subject to an AMR. The staff finds this contrary to the commitments made by the applicant to satisfy BTP APCSB 9.5-1, Appendix A, Position F.14, "Radwaste Building," i.e., that the automatic sprinklers are provided for the oil separator in the radwaste building to meet the guidance of Appendix A to BTP APCSB 9.5-1. Therefore, the fire suppression systems and components in question should be operable to meet 10 CFR 50.48 (in accordance with the current licensing basis) as stated in 10 CFR 54.4(a)(3). In addition, fire suppression systems and components should not be excluded on the basis that they are not required to function to suppress a fire or to comply with 10 CFR 50.48, without factoring in the current licensing basis.

Request. The staff determined that the radwaste building oil separator automatic sprinklers must be managed during the period of extended operation to-comply with 10 CFR 50.48 (in accordance with the current licensing basis) as stated in 10 CFR 54.4(a)(3). The staff requests that the applicant provide information to demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation as required by 10 CFR 54.21(a)(3).

RAI in 2.3.3.12-2a

Background. In its response to RAI 2.3.3.12-2, dated June 22, 2012, regarding the fire suppression systems associated with engineered safety feature (ESF) transformers ESF11 and ESF21, the applicant stated that transformers ESF11 and ESF21 are the non-safety-related source of power to engineered safeguards buses at Grand Gulf Nuclear Station during normal operation. The portions of the fire protection system associated with transformers ESF11 and ESF21 include no equipment credited with fire prevention, detection, or mitigation in areas containing equipment important to safe operation of the plant or systems that contain plant components credited for safe shutdown following a fire per 10 CFR 50.48. The fire protection system components associated with transformers ESF11 and ESF21 perform no license

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renewal intended function and, therefore, are not in the scope of license renewal and not subject to an AMR.

Issues. The staff finds that the applicant's analysis of fire protection regulations does not completely capture the fire protection SSCs required for compliance with 10 CFR 50.48. The applicant indicated that the fire suppression systems in question do not perform an intended function in support of the plant license renewal and, therefore, are excluded from the scope of license renewal and not subject to an AMR. The staff finds this contrary to the commitments made by the applicant to satisfy to BTP APCSB 9.5-1, Appendix A, Position D.1(h) and Grand Gulf Fire Hazard Analysis Report, Appendix 9A, Section 9A.5.59.2, "Safe Shutdown Equipment." The applicant's current licensing basis demonstrates that the ESF11 and ESF21 transformer fire suppression systems were credited to meet the guidance of Appendix A to BTP APCSB 9.5-1. Therefore, the fire suppression systems and components in question should be operable to meet 10 CFR 50.48 (in accordance with the current licensing basis) as stated in 10 CFR 54.4(a)(3). In addition, fire suppression systems and components should not be excluded on the basis that they are not required to function to suppress a fire or to comply with 10 CFR 50.48, without factoring in the current licensing basis.

Request. The staff determined that the fire suppression systems and components associated with transformers ESF11 and ESF21 must be managed during the period of extended operation to comply with 10 CFR 50.48 (in accordance with the current licensing basis) as stated in 10 CFR 54.4(a)(3). The staff requests that the applicant provide information to demonstrate that the effects of aging will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation as required by 10 CFR 54.21(a)(3).

RAI 3.2.1.63-1a

Background. The response to RAI 3.2.1.63-1, dated June 22, 2012, stated that the stainless steel moisture separator in license renewal application (LRA) Table 3.2.2-6 has no aging effects requiring management because the component is in the standby gas treatment system which, under normal operating conditions, is in standby with an internal environment of indoor air that does not contain significant moisture. However, the LRA defines air-indoor as air in an environment protected from precipitation. The LRA definition of air-indoor does not discuss the dew point or humidity of the air.

"Standard Review Plan for Review of License Renewal Application for Nuclear Power Plants" (SRP-LR) Section A.1.2.1 states that aging effects to be considered include those that result from normal plant operation, including plant operating transients and shutdown. The staff noted that, during normal operation, standby gas treatment systems are subject to periodic testing that is typically several hours in duration, and that the systems may be placed in service at other times.

Issue. It is unclear to the staff how condensation or the accumulation of moisture on the internal surfaces of the moisture separator is prevented during times when the standby gas treatment system is placed in service.

Request. Provide justification for why aging will not occur in the standby gas treatment system moisture separator during the period of extended operation, such as evidence that condensation and resulting corrosion does not occur in the moisture separator during testing or operation in non-accident conditions.

RAI B.1.13-1a

Background. LRA Section B.1.13 states that the Containment Inservice Inspection – IWE Program is consistent with Generic Aging Lessons Learned (GALL) Report aging management program (AMP) XI.S1, American Society of Mechanical Engineers (ASME) Section XI, Subsection IWE. According to GALL Report AMP XI.S1, the scope of IWE program includes the components of steel containments and steel liners of concrete containments specified in Subsection IWE-1000 as augmented by LR-ISG-2006-01. The components within the scope of Subsection IWE are Class MC pressure-retaining components (steel containments) and their integral attachments, metallic shell and penetration liners of Class CC containments and their integral attachments, containment moisture barriers, containment pressure-retaining bolting, and metal containment surface areas, including welds and base metal.

Updated Final Safety Analysis Report (UFSAR) Section 3.8.1.1, states that the containment consists of flat circular foundation mat, right circular cylinder, and hemispherical dome. This is clear from UFSAR Figures 3.8-1, 3.8-4a, and 3.8-118 thru 3.8-124. UFSAR Section 3.8.1.1.2, "Containment Liner Plate," states the internal surface of the containment is completely lined with welded steel plate. It further states that the suppression pool area of the containment liner has been fabricated out of stainless steel which serves as a fission product barrier. The stainless steel liner plate has also been designed to withstand the negative pressure loads due to quencher discharge bubble pressure.

Issue. In response to RAI B.1.13-1, the applicant stated that the suppression pool liner plate, which is backed by concrete, is not a part of the containment pressure retaining boundary and was not designed in accordance with ASME Section III, Division 1. The applicant further stated that the suppression pool is inspected under the Structures Monitoring Program, but is inspected using a procedure that is also used for Containment Inservice Inspection-IWE Program. The applicant further stated that ASME Section XI, Subsection IWE, is not applicable to the area of the pits since this portion of the suppression pool liner plate is not a pressure boundary component.

The RAI response, as noted above, is inconsistent with the GALL Report AMP XI.S1 and IWE-1100. Both of these documents specifically include metallic shell liner of concrete containment pressure retaining components and their integral attachments within the scope of IWE inspection program. The IWE inspection report of April 2007 for the suppression pool liner plate identified loss of thickness at more than 100 locations in the base slab and walls of the concrete containment portion of the suppression pool liner plate. The loss of thickness was more than 10 percent.

IWE-3122.3(b) states that, "When flaws or areas of degradation are accepted by engineering evaluation, the area containing the flaw or degradation shall be reexamined in accordance with IWE-2420(b), (c) and (d)." IWE-2420(b) requires that, "When examination results require evaluation of flaws or areas of degradation in accordance with IWE-3000 or IWE-2500(d), and

the component is acceptable for continued service, the area containing such flaws or area of degradation shall be reexamined during next inspection period listed in the schedule of the inspection program of IWE-2411 or IWE-2412, in accordance with Table IWE-2500-1, examination category E-C.”

Request.

- a. Provide justification for inspecting base slab and wall liner plate of the suppression pool, which is an integral part of the concrete containment, in accordance with the Structures Monitoring Program instead of the Containment Inservice Inspection – IWE Program. As part of the justification, explain how the Containment Inservice Inspection – IWE Program is consistent with GALL Report AMP XI.S1.
- b. Explain the reason for not performing the augmented inspection of the suppression pool liner plate, required by IWE-2420 and Table IWE-2500-1, examination category E-C.

RAI B.1.13-4a

Background. LRA section B.1.42, states that the Structures Monitoring Program, with enhancements, is consistent with GALL Report AMP XI.S6, “Structures Monitoring Program.” The “detection of aging effects” and “acceptance criteria” program elements of the Structures Monitoring Program are significantly different from the same elements in GALL Report AMP XI.S1, ASME Section XI, Subsection IWE. In addition, Enhancement 30 to the applicant’s Structures Monitoring Program “scope of program” program element does not include inspection of drywell, weir wall, and portion of suppression pool liner plate that is not a part of the containment boundary.

Issue. In response to RAI B.1.13-4, the applicant stated that:

The drywell, drywell head, the suppression pool (above containment floor and not part of containment cylinder wall) and weir wall liner plates, including the area between elevations 93 feet and 117 feet located in the suppression pool are not Class MC (Metal Containment) pressure retaining components of the containment as defined in ASME Section XI Subsection IWE and therefore are not included in scope of the ASME Section XI Subsection IWE program. These components are inspected under the Structures Monitoring Program. Because the Structures Monitoring Program specifies opportunistic inspections, the submerged portion of the weir wall in the area between elevations 93 feet and 117 feet is typically inspected during the ASME Section XI Subsection IWE inspections. The underwater weir wall welded connections at the suppression pool floor liner are inspected by divers during the IWE inspections. The frequency of inspections for the drywell, drywell head, the suppression pool (above containment floor and not part of containment cylinder wall) and weir wall liner plates is five years as stated in the enhancement identified for the Structures Monitoring Program. The Structures Monitoring Program was inadvertently omitted from the line items associated with the drywell, drywell head, the suppression pool, and weir wall. Therefore, the line items identified in LRA Table 3.5.2-1 are revised as shown to identify the Structures Monitoring Program as the aging management program for the associated aging effects.

The staff reviewed the applicant's Structures Monitoring Program and found that the scope of the program, including the enhancement to the scope of program (Enhancement 1), do not include drywell, drywell head, weir wall and suppression pool liner plates.

Request. Justify why the drywell, drywell head, weir wall and suppression pool liner plates are not included in Enhancement 1 of the Structures Monitoring Program.

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

Docket No. 50-416

Enclosure:
Requests for Additional
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Letter to Michael Perito from Nathaniel Ferrer dated July 27, 2012

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GRAND GULF NUCLEAR STATION, LICENSE RENEWAL APPLICATION

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