



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

March 12, 2013

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 at 301-415-1045 or by e-mail [nathaniel.ferrer@nrc.gov](mailto:nathaniel.ferrer@nrc.gov).

Sincerely,

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

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

Docket No. 50-416

Enclosure:  
As stated

cc w/encl: Listserv

GRAND GULF NUCLEAR STATION  
LICENSE RENEWAL APPLICATION  
REQUESTS FOR ADDITIONAL INFORMATION-SET 44

**RAI B.1.41-3c**

Background. Grand Gulf Nuclear Station (GGNS) LRA Sections A.1.41 and B.1.41 state that the Service Water Integrity program "manages loss of material and fouling in open-cycle cooling water systems as described in the GGNS response to NRC Generic Letter (GL) 89-13." The GGNS response to GL 89-13, Action III, Item 7, "Erosion Monitoring and Control," states that the standby service water system (SSW) does not meet the selection criteria for erosion monitoring. Based on this, the Service Water Integrity program as described in the LRA does not manage erosion. In contrast, GGNS EP-08-LRD02, "Operating Experience Review Report – AERM," identifies more than 20 condition reports (CRs) that address erosion. The associated evaluations in the report state that loss of material due to erosion is an identified aging effect for carbon steel components in raw water or treated water environments. The report evaluates erosion found in valve 1P41F299A through CR-GGN-2007-00370 by noting that this operating experience requires special consideration to specific components in the SSW system. In addition, the NRC independently identified several CRs (e.g., CR-GGN-2003-02331, and CR-GGN-2010-01344) addressing erosion that appear to indicate that MS-46 is the procedure that monitors the associated components for erosion. During the aging management program (AMP) audit, the staff requested and GGNS provided a copy of GGNS-MS-46, "Program Plan for Monitoring Internal Erosion/Corrosion in Moderate Energy Piping Components (Safety-Related)."

GGNS identified erosion in its operating experience reviews, but did not reference MS-46 in its program basis documents. Consequently, the NRC submitted an initial request for additional information (RAI) concerning the applicability of MS-46 to GGNS' aging management programs. GGNS initially stated that MS-46 is not necessary or credited to manage the effects of aging for components in the Service Water Integrity program. However, this statement was inconsistent with information in another RAI response, so the staff submitted a second RAI requesting further clarification for the applicability of MS-46. In its response to the second RAI, GGNS stated that MS-46 provides instructions for implementing inspections of components subject to aging management review and that these inspections are ongoing monitoring activities that are credited by the Fire Water System, Water Chemistry Control – Closed Treated Water Systems, and the Service Water Integrity AMPs.

After reviewing the second response, the staff had the following concerns: 1) the site documentation appeared to be incomplete because MS-46 was not included as a reference for three cited AMPs, 2) the LRA states the cited AMPs are consistent with the corresponding GALL Report AMP; however, none of these AMPs manage loss of material due to erosion at GGNS, and 3) the LRA tables corresponding to the cited AMPs do not contain any aging management review (AMR) items that address loss of material due to erosion. Based on these concerns the staff issued a third RAI asking for additional clarification.

In its third response, GGNS stated that it had revised the appropriate sections of GGNS EP-08-LRD06, "Aging Management Program Evaluation Report Non-Class I Mechanical," to identify MS-46 as an implementing procedure for the three cited AMPs. GGNS also stated that 1) MS-46 is not credited with managing loss of material due to erosion on

ENCLOSURE

components within the scope of license renewal, 2) MS-46 does not reflect the systems and components that are addressed by this procedure and requires revision to update its purpose and scope, 3) MS-46 does not describe components that are subject to loss of material due to erosion, and 4) there are no recent monitoring activities performed through MS-46.

Issue. Based on the program description in the LRA in conjunction with its response to GL 89-13, the GGNS Service Water Integrity program does not appear to manage loss of material due to erosion. In addition, based on the response to RAI B.1.41-3b, it is not clear to the staff how GGNS manages loss of material due to erosion that it has documented and evaluated in EP-08-LRD02, "Operating Experience Review Report – AERM." While it may be true as stated in EP-08-LRD02, that "loss of material due to erosion is an aging effect identified in mechanical tools for carbon steel," the mechanical tools document (EPRI 1010639) also states that there is no corresponding GALL item and there is not a match between the tool and the GALL report for components in either raw water or treated water environments. As such, if loss of material due to erosion is being managed, then an aging management review item citing generic note H, designating that the aging effect is not in the GALL Report for this component, material, and environment combination, should be included for each affected system.

Although GGNS apparently monitored erosion/corrosion in certain systems through MS-46 in the past, this appears to no longer be the case. Although the response to RAI B.1.41-3a states that MS-46 performs inspections of components subject to aging management review, and that these inspections are ongoing monitoring activities that are credited by several AMPs, no recent monitoring activities have been performed through MS-46. Further, although the title of MS-46 indicates it includes monitoring erosion/corrosion, apparently MS-46 does not describe and is not credited with managing components for loss of material due to erosion. In addition, MS-46 apparently needs to be revised to update its purpose and scope because it does not reflect the systems and components that it addresses.

Request.

- a. Describe the aging management activities at GGNS for loss of material due to erosion as evaluated in EP-08-LRD02, "Operating Experience Review Report – AERM." Provide changes to the LRA, as necessary, to reflect the above information. For the erosion found in valve 1P41F299A through CR-GGN-2007-00370, provide details regarding what and how "special consideration to specific components in the SSW system" has been taken.
- b. For each component that was previously monitored through MS-46, (i.e., components from the database that was developed and maintained in accordance with MS-46, step 5.1.1), provide information to either demonstrate that the cause of the erosion has been corrected, such that the component no longer needs to be monitored for erosion throughout the period of extended operation, or demonstrate that erosion is being monitored through appropriate aging management review items in applicable LRA tables.

Letter to M. Perito from N. Ferrer dated March 12, 2013

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