

January 2, 2014

Mr. Kevin Mulligan
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) – SET 50.

Dear Mr. Mulligan:

By letter dated October 28, 2011, Entergy Operations, Inc., submitted an application pursuant to Title 10 of the *Code of Federal Regulations* (CFR) Part 54, to renew the operating license, NPF-29, for Grand Gulf Nuclear Station, Unit 1, for review by the U.S. Nuclear Regulatory Commission (NRC) 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 (RAIs), outlined in the Enclosure, were discussed with Ted Ivy, and a mutually agreeable date for the response is within 120 days from the date of this letter. If you have any questions, please contact me at 301 415-3873 or by e-mail at john.daily@nrc.gov.

Sincerely,

/RA/

John Daily, Sr. Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-416

Enclosure :
Requests for Additional Information

cc w/encl: Listserv

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GRAND GULF NUCLEAR STATION
LICENSE RENEWAL APPLICATION
REQUESTS FOR ADDITIONAL INFORMATION SET 50

RAI 3.0.3-1

Background:

Recent industry operating experience (OE) and questions raised during the staff's review of several License Renewal Applications (LRAs) has resulted in the staff concluding that several Aging Management Programs (AMP) and Aging Management Review (AMR) items in the LRA may not or do not account for OE involving recurring internal corrosion, corrosion occurring under insulation, managing aging effects of fire water system components, and certain other issues covered by recommendations in NUREG 1801, "Generic Aging Lessons Learned (GALL) Report," AMP XI.M29, "Aboveground Metallic Tanks." In order to provide updated guidance, the NRC staff has issued LR-ISG-2012-02, "Aging Management of Internal Surfaces, Service Level III and Other Coatings, Atmospheric Storage Tanks, and Corrosion Under Insulation" (ADAMS Accession No. ML13227A361).

Issue:

The staff noted that the applicant may not have incorporated the updated guidance into its AMPs.

Request:

Please provide details on how the updated guidance of LR-ISG-2012-02 has been accounted for in your AMPs, or provide adequate justification why incorporation is not required.

RAI 3.0.3-2

Background:

Recent industry operating experience (OE) and questions raised during the staff's review of several License Renewal Applications (LRAs) has resulted in the staff concluding that several Aging Management Programs (AMP) and Aging Management Review (AMR) items in the LRA may not or do not account for recent OE regarding loss of coating integrity for Service Level III and other coatings.

Issue:

Industry OE indicates that degraded coatings have resulted in unanticipated or accelerated corrosion of the base metal and degraded performance of downstream equipment (e.g., reduction in flow, drop in pressure, reduction in heat transfer) due to flow blockage. Based on these industry OE examples, the staff has questions related to how the aging effect, loss of coating integrity due to blistering, cracking, flaking, peeling, or physical damage (e.g., cavitation damage downstream of a control valve), would be managed for Service level III and Other coatings.

ENCLOSURE

For purposes of this RAI:

1. Service Level III coatings are those installed on the interior of in-scope piping, heat exchangers, and tanks which support functions identified under 10 CFR 54.4(a)(1) and (a)(2).
2. "Other coatings," include coatings installed on the interior of in-scope piping, heat exchangers, and tanks whose failure could prevent satisfactory accomplishment of any of the functions identified under 10 CFR 54.4(a)(3).

The term "coating" includes inorganic (e.g., zinc-based) or organic (e.g., elastomeric or polymeric) coatings, linings (e.g., rubber, cementitious), and concrete surfacers (e.g., concrete-lined fire water system piping as described in the "Safety Evaluation Report with Open Items Related to the License Renewal of Grand Gulf Nuclear Station, Unit 1," (SER) Section 3.0.3.1.20) that are designed to adhere to a component to protect its surface.

3. The terms "paint" and "linings" should be considered as coatings.

The staff believes that to effectively manage loss of coating integrity due to blistering, cracking, flaking, peeling, or physical damage of Service Level III and Other coatings an aging management program should include:

1. Baseline visual inspections of coatings installed on the interior surfaces of in-scope components should be conducted in the 10-year period prior to the period of extended operation.
2. Subsequent periodic inspections where the interval is based on the baseline inspection results. For example:
 - a. If no peeling, delamination, blisters, or rusting are observed, and any cracking and flaking has been found acceptable, subsequent inspections could be conducted after multiple refueling outage intervals (e.g., for example six years, or more if the same coatings are in redundant trains).
 - b. If the inspection results do not meet the above; but, a coating specialist has determined that no remediation is required, subsequent inspections could be conducted every other refueling outage interval.
 - c. If coating degradation is observed that required repair or replacement, or for newly installed coatings, subsequent inspections should occur over at least once during the next two refueling outage intervals to establish a performance trend on the coatings.
3. All accessible internal surfaces for tanks and heat exchangers should be inspected. A representative sample of internally coated piping components not less than 73 1-foot axial length circumferential segments of piping or 50 percent of the total length of each coating material and environment combination should be inspected.

4. Coatings specialists and inspectors should be qualified in accordance with an ASTM International standard endorsed in RG 1.54, "Service Level I, II, and III Protective Coatings Applied to Nuclear Power Plants," including staff guidance associated with a particular standard.
5. Monitoring and trending should include pre-inspection reviews of previous inspection results.
6. The acceptance criteria should include that indications of peeling and delamination are not acceptable. Blistering can be evaluated by a coating specialist; however, physical testing should be conducted to ensure that the blister is completely surrounded by sound coating bonded to the surface.

Request:

If coatings have been installed on the internal surfaces of in-scope components (i.e., piping, piping subcomponents, heat exchangers, and tanks), state how loss of coating integrity due to blistering, cracking, flaking, peeling, or physical damage will be managed, including:

1. the inspection method
2. the parameters to be inspected
3. when inspections will commence and the frequency of subsequent inspections
4. the extent of inspections and the basis for the extent of inspections if it is not 100 percent
5. the training and qualification of individuals involved in coating inspections
6. how trending of coating degradation will be conducted
7. acceptance criteria
8. corrective actions for coatings that do not meet acceptance criteria, and
9. the program(s) that will be augmented to include the above activities.

If necessary, provide revisions to LRA Section 3 Table 2s, Appendix A, and Appendix B.
Note: draft RAIs 3.0.3-3, 3.0.3-4, 3.0.3-5, and 3.0.3-6 have been incorporated into RAI 3.0.3-1 due to issuance of LR-ISG-2012-02.

Letter to K. Mulligan from J. Daily dated January 2, 2014

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