



Entergy Nuclear Northeast
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August 14, 2007
JAFP-07-0100

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

- REFERENCES:
1. Letter, Entergy to USNRC, "James A. FitzPatrick Nuclear Power Plant, Docket No. 50-333, License No. DPR-59, License Renewal Application," JAFP-06-0109, dated July 31, 2006
 2. Letter, USNRC to JAFNPP, "Requests for Additional Information Regarding the Review of the License Renewal Application for James A. FitzPatrick Nuclear Power Plant (TAC No. MD2666)," dated July 25, 2007

SUBJECT: **Entergy Nuclear Operations, Inc.
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333, License No. DPR-59
License Renewal Application, Amendment 13**

Dear Sir or Madam:

On July 31, 2006, Entergy Nuclear Operations, Inc. submitted the License Renewal Application (LRA) for the James A. FitzPatrick Nuclear Power Plant (JAFNPP) as indicated by Reference 1.

Attachment 1 contains a response to RAIs provided in Reference 2.

Should you have any questions concerning this submittal, please contact Mr. Jim Costedio at (315) 349-6358.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14TH day of August, 2007.

Sincerely,

PETE DIETRICH
SITE VICE PRESIDENT

PD/cf

A124
NRR

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Attachment 1

cc:

Mr. N.B. (Tommy) Le, Senior Project Manager
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Mr. Samuel J. Collins, Administrator
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Mr. Peter R. Smith, President
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NRC Resident Inspector
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Mr. John P. Boska, Project Manager
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Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
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Attachment 1

James A. FitzPatrick Nuclear Power Plant

License Renewal Application – Amendment 13

RAI Responses:

4.3.3-1

REQUEST FOR ADDITIONAL INFORMATION (RAI)
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
LICENSE RENEWAL APPLICATION

RAI 4.3.3-1:

The license renewal application (LRA) for the James A. FitzPatrick Nuclear Power Plant listed several reactor coolant pressure boundary components that did not have a plant-specific metal fatigue analysis and cumulative usage factor (CUF). The applicant generated LRA Commitment No. 20 to address this issue. In the commitment, the applicant committed to take one of the following options or a combination of options to ensure that the time-limited aging analysis (TLAA) on environmentally-assisted fatigue (EAF) of these components, and any other Class 1 components requiring reanalysis for EAF, will be acceptable under 10 CFR 54.21(c)(1) for the period of extended operation:

Option (1): either refine the existing fatigue analyses or perform new fatigue analyses using at least one of four suboptions under this option.

Option (2): manage aging by an aging management program (AMP) for the period of extended operation.

Option (3): repair or replace the impacted component prior to exceeding a CUF of 1.0.

In order to make a determination on the acceptability of the applicant's TLAA on EAF under the requirements of 10 CFR 54.21(c)(1), the staff requests that the applicant provide additional information on the option(s) that will be used for LRA Commitment No. 20. The applicant is requested to describe the methodology that will be used for the chosen option(s) in sufficient detail for staff review. Specifically, the staff requests that:

- A. If Option (1) is chosen, describe the methodology and the process that will be used to ensure that assumptions, transients, cycles, external loadings, F_{en} values, and analysis methods are valid for the refined or new fatigue analyses.

In the event the refined analyses performed under Option (1) result in CUFs greater than 1.0, describe the option(s) that may be used in addition to Option (1).

- B. If Option (2) is chosen, describe the AMP in sufficient detail with regard to inspection scope, inspection methods, inspection frequency, and inspection qualification techniques.
- C. If Option (3) is chosen, describe how the repair or replacement activity will be implemented in accordance with applicable repair or replacement requirements of the ASME Code Section XI.

RAI Response:

James A. FitzPatrick (JAF) intends to comply with Commitment 20 by demonstrating, through the implementation of Option (1), that the cumulative usage factors (CUF) of the most fatigue sensitive locations are less than 1.0 throughout the license renewal period, considering both mechanical and environmental effects. The processes that will be used to develop the calculations for Option (1) are established design and configuration management processes. These processes are governed by Entergy's 10 CFR 50 Appendix B Quality Assurance (QA) program and include design input verification and independent reviews ensuring that valid assumptions, transients, cycles, external loadings, analysis methods, and environmental fatigue life correction factors will be used in the refined or new fatigue analyses.

The analysis methods for determination of stresses and fatigue usage will be in accordance with an NRC endorsed Edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III Rules for Construction of Nuclear Power Plant Components Division 1 Subsection NB, Class 1 Components, Sub articles NB-3200 or NB-3600 as applicable to the specific component.

JAF will utilize design transients from JAF Design Specifications as well as design transient information from typical BWR-4 references to bound all operational transients. The numbers of cycles used for evaluation will be based on the design number of cycles and actual JAF cycle counts projected to the end of the license renewal period (60 years).

Environmental effects on fatigue usage will be assessed using methodology consistent with the Generic Aging Lessons Learned Report, NUREG-1801, Rev. 1, (GALL) that states; "The sample of critical components can be evaluated by applying environmental life correction factors (Fen Methodology) to the existing ASME Code fatigue analyses. Formulae for calculating the environmental life correction factors are contained in NUREG/CR-6583 for carbon and low-alloy steels and in NUREG/CR-5704 for austenitic stainless steels."

The Fatigue Monitoring Program currently tracks actual plant transients and evaluates these against the design transients. Current cycle counts show that no limits are approached or are expected to be approached for the current license term. The Fatigue Monitoring Program will ensure that the number of transient cycles experienced by the plant will remain within the analyzed numbers of cycles and hence, the component CUFs remain below the values calculated in the design basis fatigue evaluations. If ongoing monitoring indicated the potential for a condition outside that analyzed above, JAF may perform further analysis of the identified configuration using established configuration management processes as described above.

If Option (2) becomes necessary, the inspection program submitted for approval by the NRC will be described in terms of the ten elements specified in Branch Technical Position RLSB-1 (NUREG-1800, Appendix A-1). Parameters monitored will be the presence and sizing of cracks. Frequency of inspection and acceptance criteria will be established such that detection of aging effects will occur before there is a loss of the component intended function(s). The method of inspection will be a qualified volumetric technique based on plant-specific and industry-wide operating experience.

If Option (3) becomes necessary, repair or replacement of the affected component(s) will be in accordance with established plant procedures governing repair and replacement activities. These established procedures are governed by Entergy's 10 CFR 50 Appendix B QA program and meet the applicable repair or replacement requirements of the ASME Code Section XI.