

May 4, 2004

Mr. Joseph E. Venable
Vice President Operations
Entergy Operations, Inc.
17265 River Road
Killona, LA 70066-0751

SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 (WATERFORD 3) -
REQUEST FOR ADDITIONAL INFORMATION RELATED TO REVISION TO
FACILITY OPERATING LICENSE AND TECHNICAL SPECIFICATIONS -
EXTENDED POWER UPRATE REQUEST (TAC NO. MC1355)

Dear Mr. Venable:

By letter dated November 13, 2003, and supplemented by letters dated January 29 and March 4, 2004, Entergy Operations, Inc. proposed revisions to the Waterford 3 operating license and Technical Specifications which would allow an increase in the rated power from 3,441 megawatts thermal (MWt) to 3,716 MWt.

After reviewing your request, the Nuclear Regulatory Commission staff has determined that additional information is required to complete the review. We discussed this information with your staff by telephone and they agreed to provide the additional information requested in the enclosure within 30 days of receipt of this letter.

If you have any questions, please call me at (301) 415-1480.

Sincerely,

/RA/

N. Kalyanam, Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: Request for Additional Information

cc w/encl: See next page

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Accession No.: ML041270567 * RAI input from the staff without any major change

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REQUEST FOR ADDITIONAL INFORMATION

ENTERGY OPERATIONS, INC. (ENTERGY)

WATERFORD STEAM ELECTRIC STATION, UNIT 3 (WATERFORD 3)

DOCKET NO. 50-382

The U.S. Nuclear Regulatory Commission (NRC) Review Standard, NRR-RS-001, Revision 0, *Review Standard for Extended Power Uprates (December 2003)*, provides the staff's standard review plan for the evaluation of license amendment requests for increasing power above 5 percent of the current core thermal power rated for a U.S. light-water reactor. Note 1 in Matrix 1 of Section 2.1 of NRR-RS-001, Revision 0, indicates that guidance on the neutron irradiation threshold for irradiation assisted stress corrosion cracking (IASCC) of pressurized water reactor (PWR) reactor vessel (RV) internals is given in WCAP-14577, Revision 1-A, "License Renewal Evaluation: Aging Management for Reactor Internals." WCAP-14577 Revision 1-A states that the threshold fluence level for IASCC in PWR RV internals is 1×10^{21} neutrons per square centimeter (n/cm^2) ($E > 0.1$ MeV). Entergy has indicated that the neutron fluence value for the limiting RV internal component (i.e., the core shroud) will be about 3.5×10^{22} n/cm^2 ($E > 1$ MeV) at the end of the current operating period after the 8 percent extended power uprate has been implemented. Although these values are not expressed on an equivalent basis, it is clear that the projected neutron fluence for the Waterford 3 core shroud is above the NRC's threshold for IASCC of PWR RV internal components made from stainless or nickel-alloy components.

Note 1 in Matrix 1 of Section 2.1 of NRR-RS-001 also indicates that, for management of "... thermal and neutron embrittlement of cast austenitic stainless steel, stress-corrosion cracking, and void swelling [in RV internals under extended power uprated conditions], licensees will need to provide plant-specific degradation management programs or participate in industry programs to investigate degradation effects and determine the appropriate management programs."

Since Entergy has indicated that the post-EPU limiting neutron fluence value will be significantly above the threshold for initiating IASCC in the components, consistent with Note 1 in Matrix 1 above, the NRC staff requests that Entergy either:

1. Submit an inspection program, including the scope, sample size, inspection method, frequency of examination, and acceptance criteria that will be utilized to manage the aging effects for the Waterford 3 RV internals for NRC staff review and approval, or
2. Provide a commitment to participate in the Electric Power Research Institute MRP's research initiatives on age-related degradation of RV internal components.

ENCLOSURE

Waterford Steam Electric Station, Unit 3

cc:

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