



**Entergy
Operations**

Entergy Operations, Inc.
P.O. Box 750
Fort Gibson, MS 39150
Tel: 601-437-6408

November 30, 1990

W. T. Cottle
Vice President
Operations
Grand Gulf Nuclear Station

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Pressure Temperature Limits
(PCOL-90/06) Response to Request
for Additional Information
AECM-90/0206

By letter dated April 26, 1990 (AECM-90/0048) Entergy Operations, Inc. requested an amendment to the Grand Gulf Unit 1 Operating License. This amendment would change the reactor vessel pressure-temperature limits in Technical Specifications.

By a letter dated September 27, 1990 (MAEC-90/0243) the NRC notified Entergy Operations that additional information was needed to complete its review of the proposed license amendment. Attachment 1 to this letter provides Grand Gulf's response to this request for additional information.

If you have further questions, please advise.

Yours truly,

W. T. Cottle

WTC/WKH:tkm
Attachment

cc: (See Next Page)

9012120158 901130
PDR ADOCK 05000416
P PDC

A9011272/SNLICFLR - 1

*Good
11*

00182

cc: Mr. D. C. Hintz (w/a)
Mr. T. H. Cloninger (w/a)
Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. H. L. Thomas (w/o)
Mr. H. O. Christensen (w/a)

Mr. Stewart D. Ebnetter (w/a)
Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., N.W., Suite 2900
Atlanta, Georgia 30323

Mr. L. L. Kintner, Project Manager (w/a)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop 11D21
Washington, D.C. 20555

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

REGARDING PRESSURE-TEMPERATURE LIMITS

GRAND GULF NUCLEAR STATION (GGNS), UNIT 1

REQUEST

- (1) Provide the analysis of flux wire dosimeters removed from the GGNS Unit 1 reactor vessel during the first refueling outage.

RESPONSE

Enclosure 1 provides General Electric Report entitled "Flux Wire Dosimeter Evaluation for Grand Gulf Nuclear Power Station Unit 1" dated April 1987.

REQUEST

- (2) Provide a discussion of the basis for the fluence uncertainty of # 25% from the flux wire analysis.

RESPONSE

The # 25% uncertainty associated with the neutron flux and fluence (>1MeV) obtained from the flux wire dosimeter is the estimated 2 sigma error of the values in Table 2 of the above referenced G.E. Report. This uncertainty is a composite from two primary sources. The major source of uncertainty is from the determination of the spectral weighted cross-section of the Iron-Manganese reaction. The other source is the flux wire activation analysis. A more detailed discussion is provided in the enclosed G.E. Report on Page 3-1 and Page 2 of Appendix A.

REQUEST

- (3) Provide the basis for the peak fluence revision from 1.9×10^{18} neutrons/square centimeter (n/cm^2) to $2.4 \times 10^{18} n/cm^2$.

RESPONSE

The validity of Tech Spec Figure 3.4.6.1-1 for up to 10 EFPY is based on an EOL fluence at 1/4 T of $2.1 \times 10^{18} n/cm^2$. This value was obtained by using the upper bound ID fluence of 3.1×10^{18} (based on the flux wire dosimeter evaluation) and using Reg. Guide 1.99, Rev. 2 attenuation equation. The main reasons for the revision of the fluence value from $1.9 \times 10^{18} n/cm^2$ are:

- 1) Use of the as-built specific reactor vessel thickness in the attenuation equation,
- 2) Use of conservative value of upper bound ID fluence,
- 3) Use of Reg. Guide 1.99, Rev. 2 fluence attenuation method.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

REGARDING PRESSURE-TEMPERATURE LIMITS

GRAND GULF NUCLEAR STATION (GGNS), UNIT 1
(continued)

The enclosed G.E. Report (Table 3.1) reported a value for EOL 1/4 T fluence of 2.4×10^{18} n/cm² based on the upper bound EOL ID fluence of 3.1×10^{18} n/cm². The value of 2.4×10^{18} n/cm² was determined using a fluence attenuation method different from the method specified in Reg. Guide 1.99, Rev. 2. Inadvertently, the value of 2.4×10^{18} n/cm² was reported in the GGNS amendment application dated April 26, 1990, Paragraph C.3., instead of the correct EOL 1/4 T fluence value of 2.1×10^{18} n/cm² which was calculated as described above.

Again the validity of Tech Spec Figure 3.4.6.1-1 for up to 10 EFPY is based on an EOL fluence at 1/4 T of 2.1×10^{18} n/cm² and is not affected by the previously reported value of 2.4×10^{18} n/cm².

REQUEST

- (4) Provide the azimuthal fluence estimate at the reactor vessel inside diameter projected for the end of life (or any other available time).

RESPONSE

This information is provided on Pages 3-2 and 3-3 of the enclosed G.E. Report.