TERA

GENERAL ELECTRIC

NUCLEAR POWER

SYSTEMS DIVISION

GENERAL ELECTRIC COMPANY, 175 CURTNER AVE., SAN JOSE, CALIFORNIA 95125
MC 682, (408) 925-3344

MFN -127-80

July 21, 1980

REE -042-80

U. S. Nuclear Regulatory Commission
Division of Project Management
Washington, D. C. 20555

Attention: Mr. T. A. Ippolito, Chief
Operating Projects Branch No. 2

Gentlemen:

SUBJECT: PROPOSED REVISION OF FUEL DESIGN ANALYSIS INPUT PARAMETERS

Reference:

(1) NEDE-24011-P-A-1, "Generic Reload Fuel Application," August 1979
(2) Letter No. MFN-045-80/REE-014-80, Ronald E. Engel (GE) to Paul S. Check (NRC), "BWR Fuel Cycle Optimization," February 25, 1980
(3) Williamson, H. E. and Ditmore, D. C., NEDO-10505, "Experience with BWR Fuel Through September 1971," January 1972
(4) NEDE-23785-P, "GESTR - A Model for the Prediction of GE BWR Fuel Rod Thermal/Mechanical Performance," March 1978

The purpose of this letter is to request NRC approval of a proposed change in the fuel design analysis described in the approved Reference 1 Licensing Topical Report. This request supersedes that included in Reference 2. The following change would allow General Electric to respond to many BWR utility requests for high capacity 18-month operating cycles, which can improve plant productivity by 2-3%. Although the proposed change is in non-safety related design analyses, details of these design analyses are included in Reference 1. Therefore, your approval for the proposed change is requested by August 22, 1980. Reference 1 would then be revised to reflect your approval.

It is proposed that nominal fuel rod dimensions rather than worst tolerance dimensions be used in the current fuel rod design analyses in Reference 1 for non-safety related fuel design analysis. Use of nominal dimensions still results in overall conservative calculational results due to conservatisms in other areas. These conservatisms include:

XA01 S/0

ADD: L.E. J BERGGREN 1E 1aE 6

8007250515

1. Fuel rod design model conservatism shown in Reference 3.

2. Conservative limits in terms of fraction of yield and ultimate strength patterned after ASME Boiler & Pressure Vessel Code, Section 3. This conservatism is supplemented by the use of conservative properties for yield and ultimate.

3. Application of models and limits using the maximum power/exposure projectory possible considering the license limit LHGR, i.e., no credit is taken for expected operating margin, average power based on exposure, etc.

To support high energy cycle operation, the results of the fuel analyses will be reported for peak-pellet exposures up to 50,000 MWd/MT (~45,000 MWd/ST). It should be noted that the non-safety related fuel design analysis have been performed within General Electric with a conservative application of the GESTR model (Reference 4) currently being reviewed by the NRC. All proposed GESTR design limits were met for exposures out to 50,000 MWd/MT.

In summary, the current fuel rod design models with nominal dimensions constitute a sufficiently conservative fuel design basis. In addition, analyses of current fuel design to exposures up to 50,000 MWd/MT with General Electric's best understanding of fuel rod behavior (GESTR) applied in a conservative fashion indicates all design limits are met.

Once approved, the proposed revisions will be reflected in Reference 1. Please contact J. S. Charnley on (408) 925-3697 if there are any questions on this request.

Sincerely,

J. S. Charnley for

Ronald E. Engel, Manager
Reload Fuel Licensing
Safety and Licensing Operation

REE:cas/5S

cc: L. S. Gifford
R. O. Meyers