ATTACHMENT I

Marked-up Technical Specification Page:

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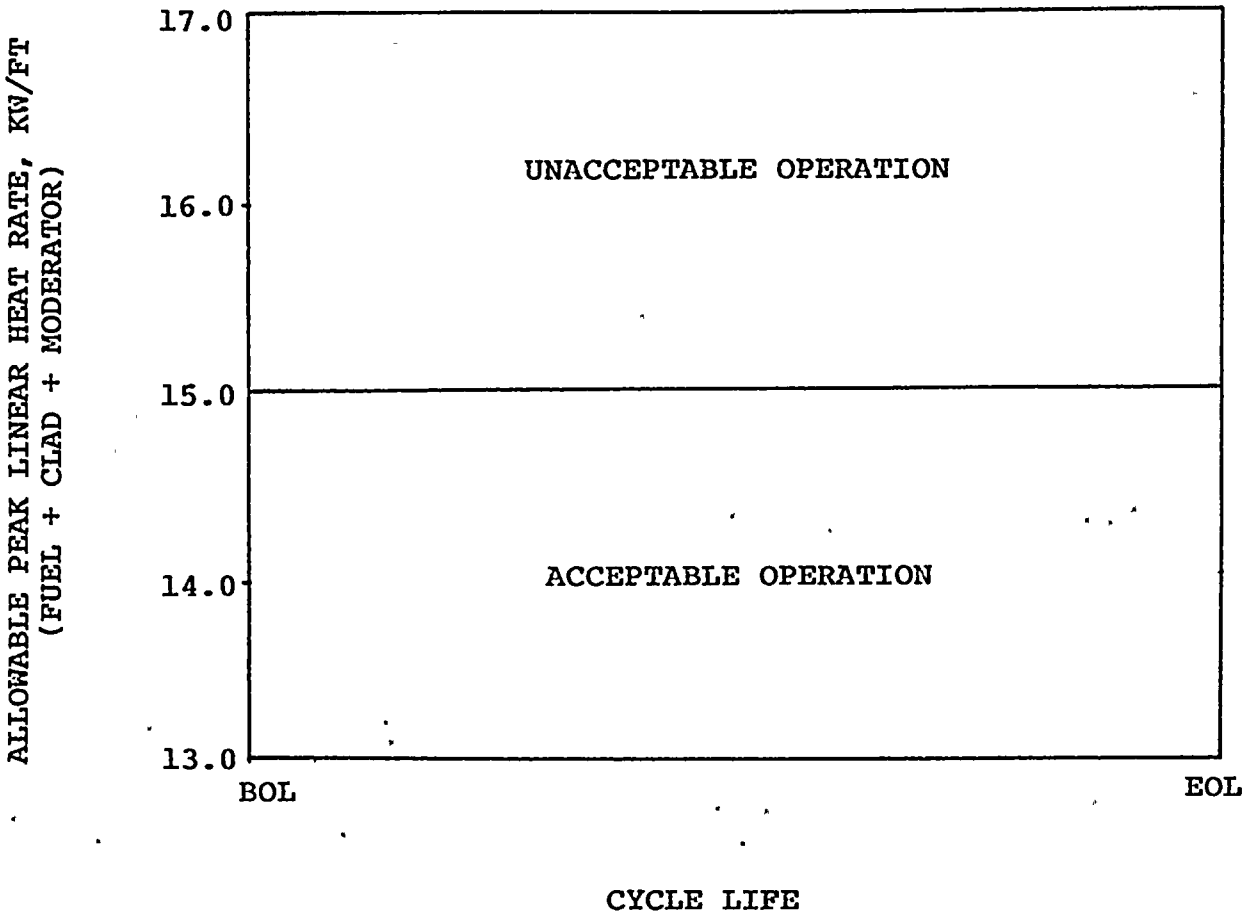

FIGURE 3.2-1
ALLOWABLE PEAK LINEAR HEAT RATE VS. BURNUP

ATTACHMENT 2

SAFETY EVALUATION

Background

The proposed change to the Linear Heat Rate Limiting Condition for Operation (LHR LCO), Technical Specification 3.2.1, Figure 3.2-1, Allowable Peak Linear Heat Rate vs. Burnup, is to raise the allowable peak linear heat generation rate to 15 kw/ft for all axial elevations for all times in life. The basis for this change is found in Reference 1.

Discussion

The key changes in the analysis found in Reference 1 from the previous LOCA analysis (Reference 2) are: 1) Steam Generator Tube Plugging limit raised from 11% to 15%, 2) Use of the recently approved FCTF reflood correlations instead of the FLECHT reflood correlations, and 3) Use of less conservative, though still bounding, combinations of stored energy and axial shapes.

Of the three changes, two of them have been previously reviewed and approved by the NRC. The effects of 15% Steam Generator Tube Plugging have been previously analyzed (Reference 3) and approved for St. Lucie Unit 1 and the use of the FCTF reflood correlations has been generically approved for the Exxon Nuclear Company, Inc. (ENC) (Reference 4). The other change, use of less conservative combinations of stored energy and axial shape, has been examined by using two ranges of exposure rather than simply combining the bounding stored energy value, found near Beginning of Life (BOL), and the bounding axial shape found at End of Life (EOL). Within the exposure range, the combination of worst stored energy and axial shape were used. The two ranges of exposure were: 1) from 0.0 to 10.0 MWD/kg hot rod average burnup and 2) 10.0 MWD/kg to EOL. The axial shapes chosen are limiting in that there are no calculated axial power distributions which peak higher in the core and whose shape about the peak falls off slower. This technique, therefore, uses a more realistic approach to evaluating burnup effects while still retaining significant conservatism.

The analyses described in Reference 1 have been used to demonstrate that, with a 15 kw/ft LCO on LHR, all criteria are satisfied. A review of these results indicates the following.

(a) The calculated peak fuel element clad temperature does not exceed the 2200°F limit.

(b) The amount of fuel element cladding that reacts chemically with water or steam does not exceed 1% of the total amount of zircaloy in the reactor.

(c) The cladding temperature transient is terminated at a time when the core geometry is still amenable to cooling. The hot fuel rod cladding oxidation limits of 17% are not exceeded during or after quenching.

(d) The system long term cooling capabilities provided for previous cores remain applicable for ENC fuel.

The Acceptance Criteria as presented in 10 CFR 50.46(b)(1), (b)(2), (b)(3), (b)(4), and (b)(5) are satisfied based on these results.

References

1. "St. Lucie Unit 1 LOCA-ECCS Analysis with 15% Steam Generator Tube Plugging", XN-NF-86-137, Exxon Nuclear Company, November 1986.

2. "St. Lucie Unit 1 LOCA-ECCS Analysis with 11% Steam Generator Tube Plugging", XN-NF-86-23, Revision 1, Exxon Nuclear Company, March, 1986.

3. "St. Lucie Unit 1 Revised LOCA-ECCS Analysis with 15% Steam Generator Tube Plugging", XN-NF-86-117, Exxon Nuclear Company, November 1985.

4. U. S. Nuclear Regulatory Commission letter to G. N. Ward from D. M. Crutchfield, "Safety Evaluation of Exxon Nuclear Company's Large Break ECCS Evaluation Model", EXEM/PWR and Acceptance for Referencing Related Topical Reports, July 8, 1986.

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ATTACHMENT 3

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

The standards used to arrive at a determination that a request for amendment involves no significant hazards consideration are included in the Commission's regulations, 10 CFR 50.92, which states that no significant hazards considerations are involved if the operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possiblity of a new or different kind of accident from any accident previously evaluated or (3) involve a significant reduction in a margin of safety. Each standard is discussed as follows:

(1) Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

The plant will be operated in essentially the same manner as before and no change in plant configuration has occurred. Therefore, there is no increase in the probability of accidents previously evaluated.

The accident analyses have been evaluated and have been found to be bounded by the consequences of accidents previously analyzed.

(2) Use of the modified specification would not create the possibility of a new or different kind of accident from any accident previously evaluated.

The plant will be operated in essentially the same manner as before and no change in plant configuration is involved. Therefore, there will be no possibility of a new or different accident.

(3) Use of the modified specification would not involve a significant reduction in a margin of safety.

The Acceptance Criteria for emergency core cooling systems for light water nuclear power reactors is specified by 10 CFR 50.46. The input changes that result from this amendment provide results within the Acceptance Criteria of 10 CFR 50.46.

Based on the above, we have determined that the amendment request does not (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the probability of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety; and therefore does not involve a significant hazards consideration.