



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 98 TO LICENSE NO. DPR-49

IOWA ELECTRIC LIGHT AND POWER COMPANY
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 Introduction

By letter dated March 5, 1984 (Ref. 1) Iowa Electric Light and Power Company (the licensee) proposed a modification to the Technical Specifications for the Duane Arnold Energy Center (DAEC). Changes were made necessary in order to specify the Maximum Average Linear Heat Generation Rate (MAPLHGR) operating limits for both unpressurized and pressurized 8x8R fuel types beyond planar average exposures of 30,000 MWd/STU.

2.0 Evaluation

The licensee's submittal provided MAPLHGR limits for fuel types (8D274L, 8D274H and 8DPB289) in the Duane Arnold core. Although the methodology (Ref. 2) used is generically applicable for the determination of MAPLHGR limits, we previously concluded (Ref. 3) that the effects of enhanced fission gas release at high burnups (i.e., greater than 20,000 MWd/MtU) were not adequately considered in the analysis. In response to this concern, the fuel vendor (General Electric) requested (Refs. 4-5) that credit for approved, but unapplied, ECCS evaluation model changes and calculated peak cladding temperature margin be used to avoid MAPLHGR penalties at higher burnups. This proposal was found acceptable (Ref. 6) provided that certain plant-specific analytical considerations were met. The General Electric Standard Application for Reactor Fuel (GESTAR-II-Ref. 7) has been modified (Section S.2.5.2.5) to incorporate these considerations.

Based on our review of the licensee's proposal to extend the MAPLHGR limits for various fuel types present in the DAEC core, and based on our previous approval of the generic methods used to determine these limits, we find the proposed MAPLHGR limits acceptable.

3.0 Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves

an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

4.0 Conclusion

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

REFERENCES

1. R.W. McGaughy (IEPLC) letter NG-84-1011 to H.R. Denton (NRC) on "Extended Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limits" dated March 5, 1984.
2. "LOCA Analysis Report for Duane Arnold Energy Center," General Electric Company Report NEDO-21082-02-1A (July 1977), Addendum 1 (January 1981).
3. D.F. Ross, Jr. (NRC) letter to G. Sherwood (GE) dated January 18, 1978.
4. R.E. Engel (GE) letter to T.A. Ippolito (NRC) dated May 6, 1981.
5. R.E. Engel (GE) letter to T.A. Ippolito (NRC) dated May 28, 1981.
6. L.S. Rubenstein (NRC) memorandum for T.M. Novak (NRC) on "Extension of General Electric Emergency Core Cooling System Performance Limits" dated June 25, 1981.
7. "General Electric Standard application for Reactor Fuel," General Electric Company NEDE-24011-P-A-6, April 1983.

Principal Reviewer: J.C. Vogelewede

Dated: May 14, 1984