

May 14, 1984

Docket No. 50-331

Mr. Lee Liu
Chairman of the Board and
Chief Executive Officer
Iowa Electric Light and Power Company
Post Office Box 351
Cedar Rapids, Iowa 52406

Dear Mr. Liu:

The Commission has issued the enclosed Amendment No. 98 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center. This amendment consists of changes to the Technical Specifications in response to your application dated March 5, 1984.

The amendment revises the Technical Specifications to incorporate additional Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) operating limits beyond the planar average fuel exposure of 30,000 megawatt days per ton (MWD/T).

A copy of the related Safety Evaluation is also enclosed.

Sincerely,

Original Signed by /
Mohan C. Thadani, Project Manager
Operating Reactors Branch #2
Division of Licensing

Enclosures:

1. Amendment No. 98 to
License No. DPR-49
2. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION

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ORB#2 Rdg.	MThadani	ELJordan	DBrinkman	RDiggs	

*See concurrence on next page

DL:ORB#2	DL:ORB#2	DL:ORB#2	OELD	DL:AD-OR
SNorris:jk *	MThadani *	DVassallo *	*	GLainas *
05/ /84	05/ /84	05/ /84	05/ /84	05/ /84

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MThadani
05/1/84

DL:ORB#2
DVassallo
05/1/84

OELD
05/3/84

DL:AD-OR
GL:mas
05/9/84

Mr. Lee Liu
Iowa Electric Light and Power Company
Duane Arnold Energy Center

cc:

Mr. Jack Newman, Esquire
Harold F. Reis, Esquire
Newman and Holtzinger
1025 Connecticut Avenue, N. W.
Washington, D. C. 20036

Mr. Thomas Houvengale
Regulatory Engineer
Iowa Commerce Commission
Lucas State Office Building
Des Moines, Iowa 50319

Office for Planning and Programming
523 East 12th Street
Des Moines, Iowa 50319

Chairman, Linn County
Board of Supervisors
Cedar Rapids, Iowa 52406

Iowa Electric Light and Power Company
ATTN: D. L. Mineck
Post Office Box 351
Cedar Rapids, Iowa 52406

U. S. Environmental Protection
Agency
Region VII Office
Regional Radiation Representative
324 East 11th Street
Kansas City, Missouri 64106

U. S. Nuclear Regulatory Commission
Resident Inspector's Office
Rural Route #1
Palo, Iowa 52324

James G. Keppler
Regional Radiation Representative
Region III Office
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137



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

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

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 98
License No. DPR-49

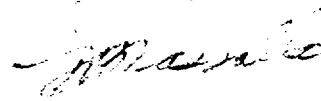
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Iowa Electric Light & Power Company, et al, dated March 5, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the
Technical Specifications

Date of Issuance: May 14, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 98

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

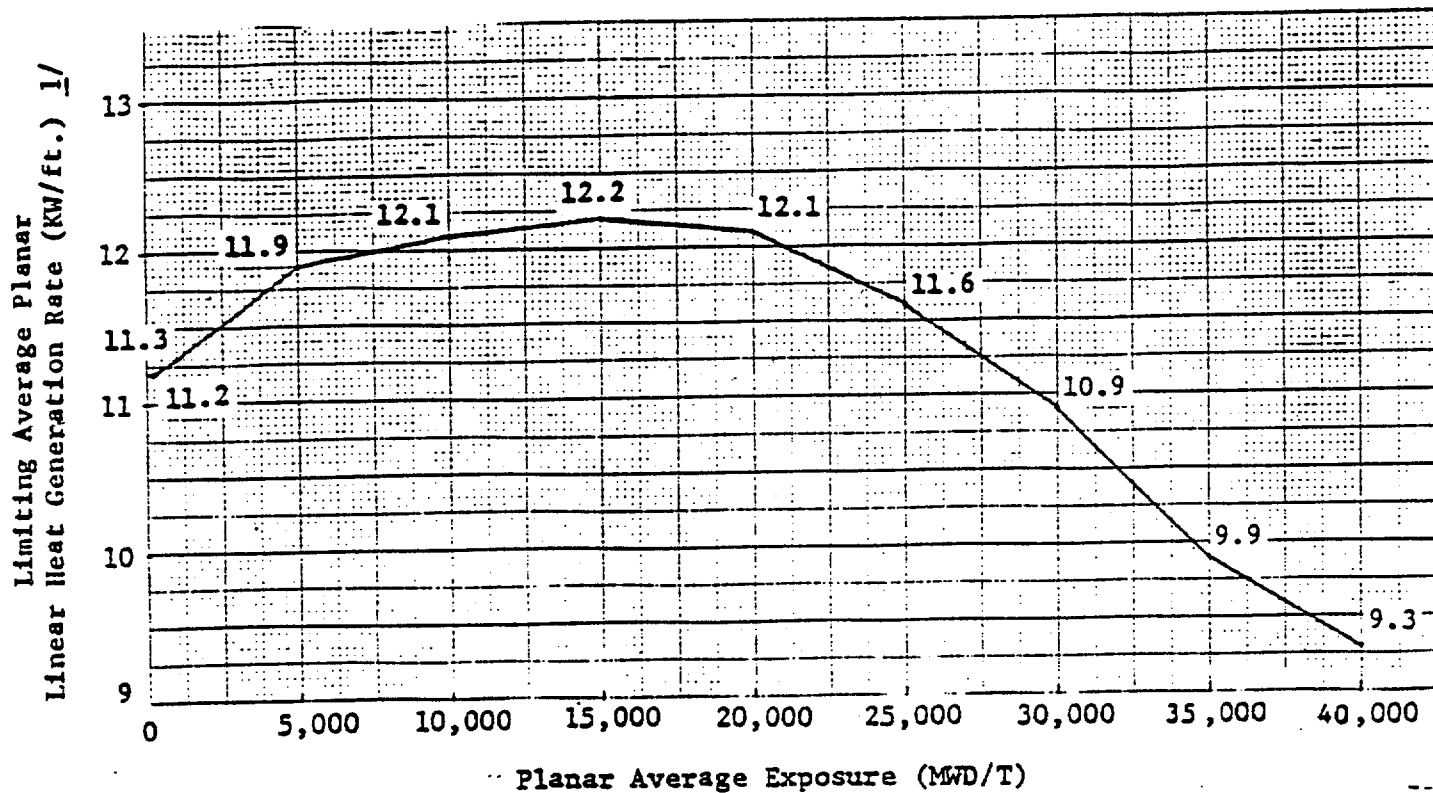
Revise the Appendix A Technical Specifications by Removing the Current pages and inserting the revised pages listed below. The revised areas are identified by vertical lines.

LIST OF AFFECTED PAGES

3.12 - 16

3.12 - 17

3.12 - 18



1/ When core flow is equal to or less than 70% of rated, the MAPLHGR shall not exceed 95% of the limiting values shown.

DUANE ARNOLD ENERGY CENTER

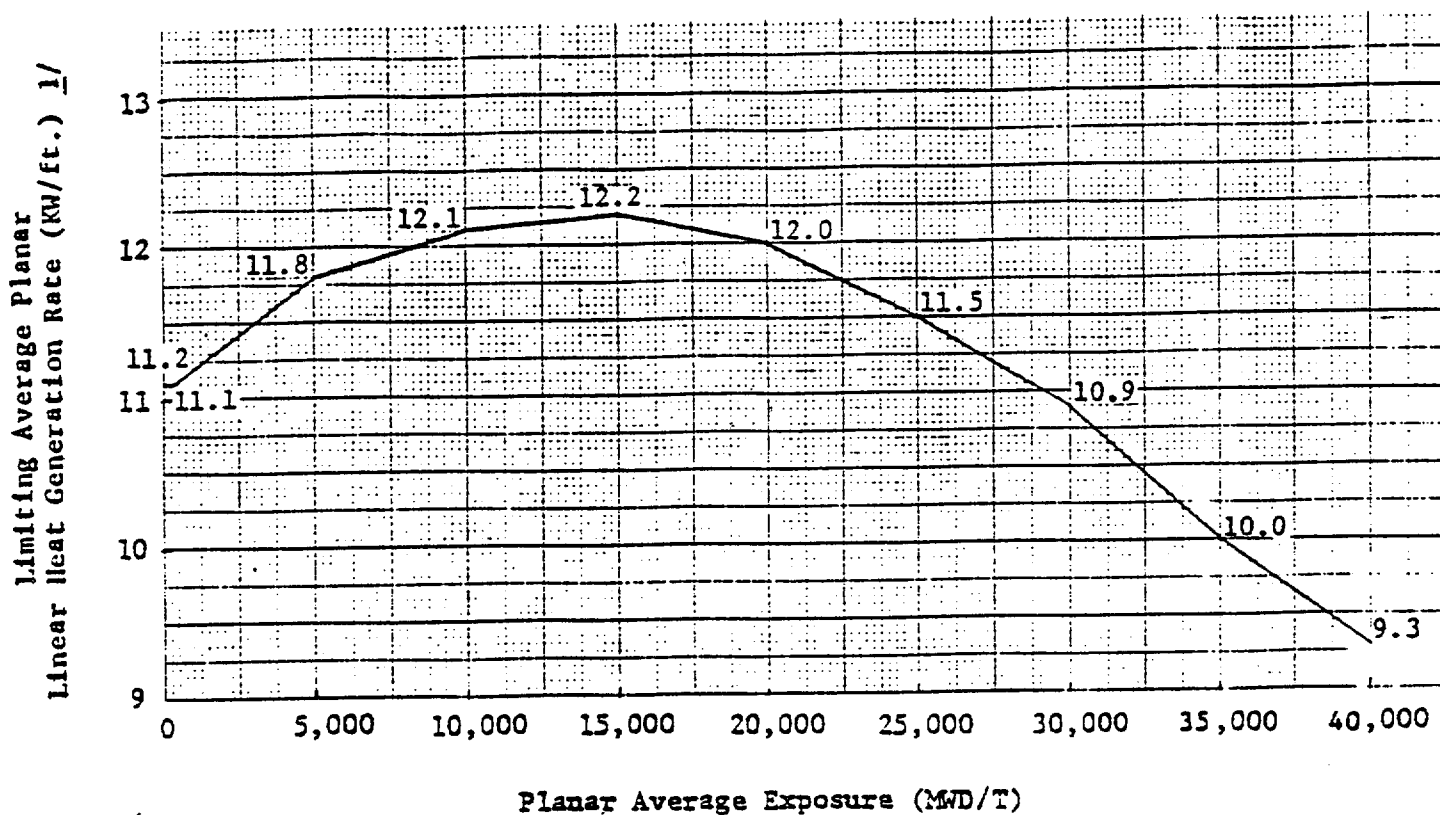
IOWA ELECTRIC LIGHT AND POWER COMPANY

TECHNICAL SPECIFICATIONS

LIMITING AVERAGE PLANAR LINEAR HEAT
GENERATION RATE AS A FUNCTION OF PLANAR
AVERAGE EXPOSURE

FUEL TYPE: 8D274L

FIGURE 3.12-5



^{1/} When core flow is equal to or less than 70% of rated, the MAPLHGR shall not exceed 95% of the limiting values shown.

DUANE ARNOLD ENERGY CENTER

IOWA ELECTRIC LIGHT AND POWER COMPANY

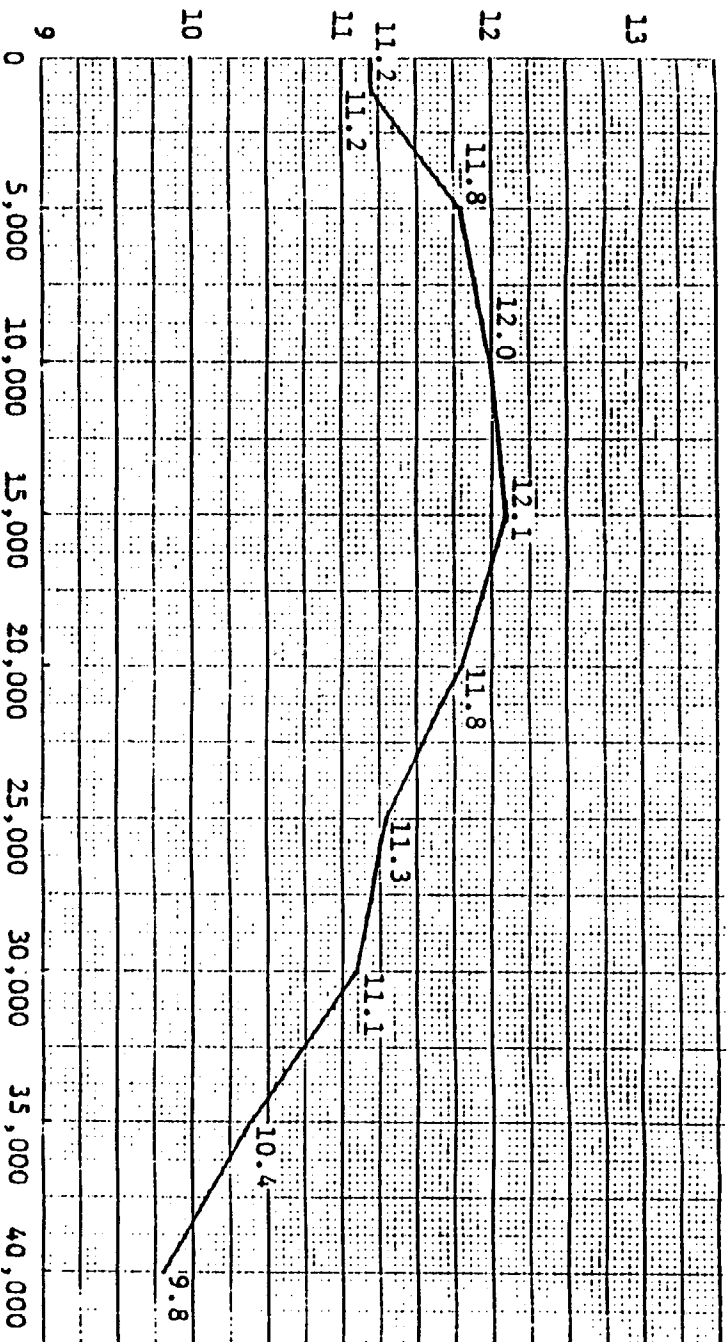
TECHNICAL SPECIFICATIONS

LIMITING AVERAGE PLANAR LINEAR HEAT
GENERATION RATE AS A FUNCTION OF PLANAR
AVERAGE EXPOSURE

FUEL TYPE: 8D274H

FIGURE 3.12-6

Limiting Average Planar
Linear Heat Generation Rate (KW/ft.) ^{1/}



Planar Average Exposure (MRD/T)

^{1/} When core flow is equal to or less than 70% of rated, the MAPLBCA shall not exceed 95% of the limiting values shown.

DUANE ARNOLD ENERGY CENTER
IOWA ELECTRIC LIGHT AND POWER COMPANY
TECHNICAL SPECIFICATIONS
LIMITING AVERAGE PLANAR LINEAR HEAT GENERATION RATE AS A FUNCTION OF PLANAR AVERAGE EXPOSURE
FUEL TYPE: P8DP3289
FIGURE 3.12-7

3.12-18



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 P8DPB289) 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

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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