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NOV 21 1974

Docket No. 50-298

Nebraska Public Power District
ATTN: Mr. J. M. Pilant, Manager
Licensing and Quality Assurance
P. O. Box 499
Columbus, Nebraska 68601

Gentlemen:

The Commission has issued the enclosed Amendment No. 8 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. The amendment includes Change No. 11 to the Technical Specifications and is in response to part of your request dated May 28, 1974.

The amendment permits an increase in the maximum average planar linear heat generation rate curves.

A copy of the related Federal Register Notice is also enclosed.

Sincerely,

Original signed by
Dennis L. Ziemann

Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Directorate of Licensing

Enclosures:
1. Amendment No. 8
2. Federal Register Notice

cc w/enclosures:
See next page

OFFICE ➔	L:ORB-2	L:ORB-2	L:ORB-2	OGC	L:OR	
SURNAME ➔	RMDiggs/tc	JSapir	DLZiemann	I.A.STRIDIRON	KRGoller	
DATE ➔	11/21/74	11/13/74	11/14/74	11/20/74	11/20/74	

Form AEC-318 (Rev. 9-53) AECM 0240

GPO C43 18 81465-1 520-284

cc w/enclosures:
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Auburn Public Library
1118 - 15th Street
Auburn, Nebraska 68305

Mr. William Siebert, Commissioner
Nemaha County Board of Commissioners
Nebraska County Courtroom
Auburn, Nebraska 68305

Mr. James L. Higgins, Director
Department of Environmental Control
Executive Building, 2nd Floor
Lincoln, Nebraska 68509

Mr. Ed Vest
Environmental Protection Agency
1735 Baltimore Avenue
Kansas, Missouri 64108

OFFICE ➔						
SURNAME ➔						
DATE ➔						

NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 8
License No. DPR-46

1. The Atomic Energy Commission (the Commission) having found that:

   A. The application for amendment by Nebraska Public Power District (the licensee) dated May 28, 1974, 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; and

   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.

   E. No request for a hearing or petition for leave to intervene was filed following notice of the proposed action.

2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility License No. DPR-46 is hereby amended to read as follows:

OFFICE ➤						
SURNAME ➤						
DATE ➤						

"(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 11."

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

FOR THE ATOMIC ENERGY COMMISSION

/s/ Robert Purple for

Karl R. Goller, Assistant Director
for Operating Reactors
Directorate of Licensing

Attachment:
Change No. 11 to the
Technical Specifications

Date of Issuance:

NOV 21 1974

OFFICE ➔						
SURNAME ➔						
DATE ➔						

ATTACHMENT TO LICENSE AMENDMENT NO. 8

CHANGE NO. 11 TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

Replace pages 123, 129, 130 and 131a of Appendix A of the Technical Specifications with the attached revised pages. Changed areas on the revised pages are reflected by marginal lines.

OFFICE ➤						
SURNAME ➤						
DATE ➤						

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENT
3.5.4. Engineered Safeguards Compartments Cooling If the unit coolers serving the Reactor Core Isolation Cooling (RCIC), High Pressure Coolant Injection (HPCI), Core Spray or Residual Heat Removal (RHR) pump are out of service, the associated pump shall be considered inoperable for purposes of Specifications 3.5.A, 3.5.C, or 3.5.D as applicable.	4.5.4 Engineered Safeguards Compartments Cooling The unit coolers for the RCIC, HPCI, Core Spray, and RHR pumps shall be checked for operability during surveillance testing of the associated pumps.
I. Average Planar LHGR During steady state power operations, the average linear heat generation rate (LHGR) of all the rods in any fuel assembly, as a function of the average planar exposure, at any axial location, shall not exceed the maximum average LHGR shown in Figure 3.5.1	I. Average Planar LHGR Daily during reactor power operation, the average planar LHGR shall be checked.
11 J. Local LHGR During steady state power operation, the linear heat generation rate (LHGR) of any rod in any fuel assembly at any axial location shall not exceed the maximum allowable LHGR as calculated by the following equation: $LHGR_{max} \leq LHGR_d \left[1 - \{(\Delta P/P)_{max} (L/LT)\}\right]$ $LHGR_d$ = Design LHGR = 18.5 KW/ft. $(\Delta P/P)_{max}$ = Maximum power spiking penalty = 0.038 LT = Total core length = 12 feet L = Axial position above bottom of core	J. Local LHGR Daily during reactor power operation, the local LHGR shall be checked.

3.5 BASES (cont'd.)

I. Average Planar LHGR

This specification assures that the peak cladding temperature following the postulated design basis loss-of-coolant accident will not exceed the 2300°F limit specified in the Interim Acceptance Criteria (IAC) issued in June 1971 considering the postulated effects of fuel pellet densification.

The peak cladding temperature following a postulated loss-of-coolant accident is primarily a function of the average heat generation rate of all the rods of a fuel assembly at any axial location and is only dependent secondarily on the rod to rod power distribution within an assembly. Since expected location variations in power distribution within a fuel assembly affect the calculated peak clad temperature by less than ± 20°F relative to the peak temperature for a typical fuel design, the limit on the average linear heat generation rate is sufficient to assure that calculated temperatures are within the IAC limit.

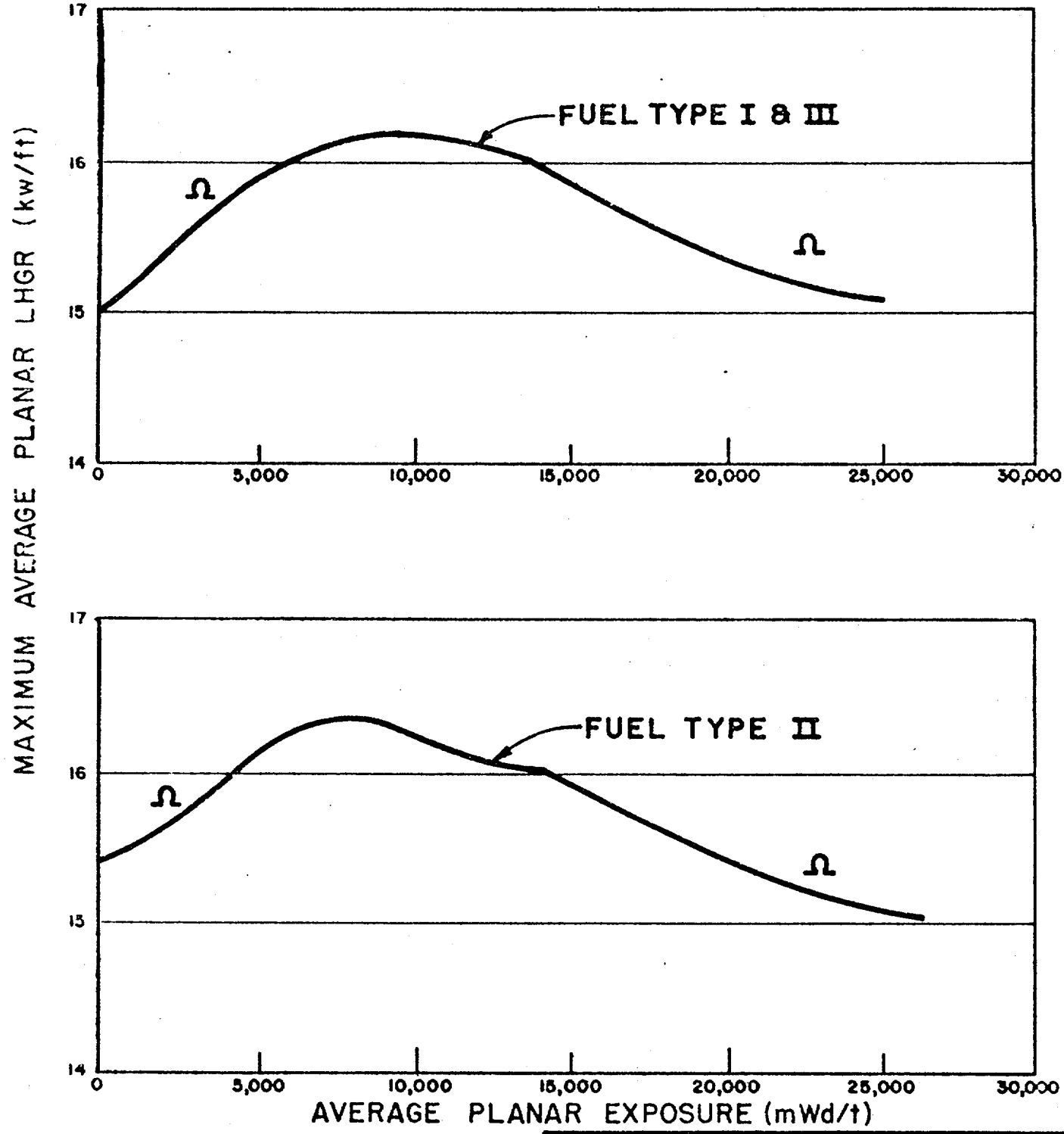
The maximum average planar LHGR's shown in Figure 3.5.1 are based on calculations employing the models described in the General Electric Report NEDM-10735 as modified by General Electric Report NEDO-20181, which was modified by the Regulatory staff in "Supplement to the Technical Report on Densification of General Electric Reactor Fuels, December 14, 1973". 11

The possible effects of fuel pellet densification were: (1) creep collapse of the cladding due to axial gap formation; (2) increase in the LHGR because of pellet column shortening; (3) power spikes due to axial gap formation; and (4) changes in stored energy due to increased radial gap size. Calculations show that clad collapse is conservatively predicted not to occur currently or during the next power operation cycle. Therefore, clad collapse is not considered in the analyses. Since axial thermal expansion of the fuel pellets is greater than axial shrinkage due to densification the analyses of peak clad temperature do not consider any change in LHGR due to pellet column shortening. Although the formation of axial gaps might produce a local power spike at one location on any one rod in a fuel assembly, the increase in local power density would be on the order of only 2% at the axial midplane. Since small local variations in power distribution have a small effect on peak clad temperature, power spikes were not considered in the analysis of loss-of-coolant accidents. Changes in gap size affect the peak clad temperature by their effect on pellet-clad thermal conductance and fuel pellet stored energy. The pellet-clad thermal conductance assumed for each rod is dependent on the steady state operating linear heat generation rate and the gap size. The pellet-clad thermal conductance was calculated using the General Electric GECAP-III model described in NEDO-20181. For the most critical rod, the two standard deviation lower bound on initial pellet density was assumed. For the other 48 rods in the bundle the two standard deviation lower bound on the initial mean "boat" pellet density was assumed. 11

11

J. Local LHGR

This specification assures that the linear heat generation rate in any rod is less than the design linear heat generation even if fuel pellet densification is postulated. The power spike penalty specified is based on the analysis presented in Section 3.2.1 of the GE topical report NEDM-10735 Supplement 6, and assumes a linearly increasing variation in axial gaps between core bottom and top, and assures with a 95% confidence, that no more than one fuel rod exceeds the design linear heat generation rate due to power spiking.



NEBRASKA PUBLIC POWER DISTRICT COOPER NUCLEAR STATION			
FIGURE 3.5.1 MAXIMUM ALLOWABLE AVERAGE PLANAR LHGR			
DRAWN BY	TRACED BY	CHECKED BY	APPROVED BY
SCALE		DRAWING NO.	