NOV 16 1973

Docket No. 50-219

Jersey Central Power & Light Company
ATTN: Mr. I. R. Finfrock, Jr.
Vice President - Generation
Madison Avenue at Punch Bowl Road
Morristown, New Jersey 07960

Gentlemen:

Change No. 17
License No. DPR-16

By letter dated September 7, 1973, you submitted a request for a change to the Technical Specifications for Oyster Creek Nuclear Generating Station that would raise the limit for the average planar linear heat generation rate (APLHGR) for Type III E fuel from 10.3 kW/ft to 11.5 kW/ft. You submitted, as a basis for this increase, a report entitled "The Effect of Passive Central Rods on Heat Transfer During Spray Cooling of BWR Fuel Bundles".

By letters to you dated October 26, 1973, and October 31, we requested that you submit revised curves representing the APLHGR limits for the General Electric Company fuel (Types I and II) and the Exxon fuel (Types III and III E) in the Oyster Creek core that includes the results of detailed heatup calculations to an exposure of 25,000 MWD/T and includes two changes in the calculations for the Exxon fuel that we requested (i.e., an increase in sink temperature and an increase in the heavy element contribution to decay heat). You responded with the submittal dated November 5, 1973, that also included a sensitivity study that showed the effect of varying the spray heat transfer coefficient at the time of quench of the passive central rod and varying the time of quench of the passive central rod.

We have reviewed the above submittals and agree that prior to quenching of the passive, rod, the effect of a passive rod on the spray cooling of neighboring rods is small and that the peak cladding temperature calculated for the Oyster Creek plant is relatively insensitive to reductions in spray coefficients once the passive rod is quenched. A reduction of the spray coefficients of the neighboring rods to zero when the passive rod quenches, for example, resulted in an increase in the peak clad temperature of only 6°F. The effect of the assumed quenching time was also investigated. The results indicate that the quenching time used for the Oyster Creek calculations (560 sec.) is conservatively selected. We concur that the use of the spray coefficients derived from the BWR FLECHT program is appropriate for the LOCA analysis of the Type III E fuel. CP

DISTRIBUTION
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JRBuchanan, ORNL
TBAbernathy, DTIE
RDeYoung, L:PWR
DJSkovholt, L:OR
RLTedesco, L:CS

Based on the above considerations, we conclude that Change No. 17 to the Technical Specifications that modifies the limits for APLHGR (Fig. 3.10.1) does not present a significant hazards consideration and that there is reasonable assurance that the health and safety of the public will not be endangered.

Accordingly, pursuant to 10 CFR Part 50, Section 50.59, the Technical Specifications of Provisional Operating License No. DPR-16 are hereby changed by replacing the existing page 3.10-2 and Figure 3.10.1 with the enclosed revised page and figure.

Sincerely,

Original signed by
Donald J. Skovholt

Donald J. Skovholt
Assistant Director for
Operating Reactors
Directorate of Licensing

ACRS (16)
rO (3)
OGC
RJSchemel
TJCarter
TVWambach
SATeets
NDube
MJinks (4)
BScharf (15)
SKari
PCollins

Enclosure:
Revised Page 3.10-2 and
Figure 3.10.1

cc w/enclosure:
G. F. Trowbridge, Esquire
Shaw, Pittman, Potts, Trowbridge
and Madden
910 - 17th Street, N. W.
Washington, D. C. 20006

GPU Service Corporation
ATTN: Mr. Thomas M. Crimmins
Safety & Licensing Manager
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Parsippany, New Jersey 07054

Mr. Kenneth B. Walton
Brigantine Tutoring
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Miss Dorothy R. Horner
Township Clerk
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Ocean County Library
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Toms River, New Jersey 08753

OFFICE ▶	L:ORB#1	L:ORB#1	L:ORB#1	L:OR		
SURNAME ▶	x-7434 TVWambach:dc	SATeets	RJSchemel	DJSkovholt		
DATE ▶	11/16/73	11/16/73	11/16/73	11/16/73		

Form AEC-318 (Rev. 9-53) AECM 0240 GPO c43—16—81465-1 445-678

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

November 16, 1973

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Sincerely,

Donald J. Skovholt
Assistant Director for
Operating Reactors
Directorate of Licensing

Enclosure:
Revised Page 3.10-2 and
Figure 3.10.1

cc w/enclosure:
G. F. Trowbridge, Esquire
Shaw, Pittman, Potts, Trowbridge
and Madden
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15 Hooper Avenue
Toms River, New Jersey 08753

Basis:

The specification for average planar LHGR 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 fuel assembly at any axial location and is only dependent secondarily on the rod to rod power distribution within an assembly. Since expected local variations in power distribution within a fuel assembly affect the calculated peak clad temperature by less than $\pm$ 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 below the IAC limit.

The maximum average planar LHGR shown in Figure 3.10.1 for Type I and Type II fuel are the result of the calculations presented in Section 4.3.4 of the GE topical report, "Fuel Densification Effects on General Electric Boiling Water Reactor Fuel," NEDM-10735, Supplement 6, August 1973. The Type I curve is the same as the curve labeled "γ" (Gamma) on Figure 4-9A2 in the same report and the Type II curve is the same as the curve labeled "γ" (Gamma) on Figure 4-9A1 (Rev. 11-5) attached to a letter dated November 2, 1973, from General Electric Company. This revision modifies the curve to include the results of detailed heatup calculations for the peak clad temperature at exposures up to 25,000 MWD/T. These calculations were made to determine the effect of densification on peak clad temperature following a postulated LOCA and were performed in accordance with the AEC Fuel Densification Model for BWRs which is attached to NEDM-10735, Supplement 6, as Appendix B.

The maximum average planar LHGR shown in Figure 3.10.1 for Type III and III E fuel are the result of the calculations presented in Supplement No. 3 to Facility Change Request No. 4 dated April 17, 1973, as amended by Attachment 1 to Jersey Central Power & Light Company letters dated August 15, 1973, and November 5, 1973. These calculations were made to determine the effect of densification on peak clad temperature following a postulated LOCA and include the results of detailed heatup calculations to maximum planar exposure of 26,000 MWD/MT.

Change No. 17

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 during the current power operation cycle (Cycle 3). Therefore, clad collapse is not

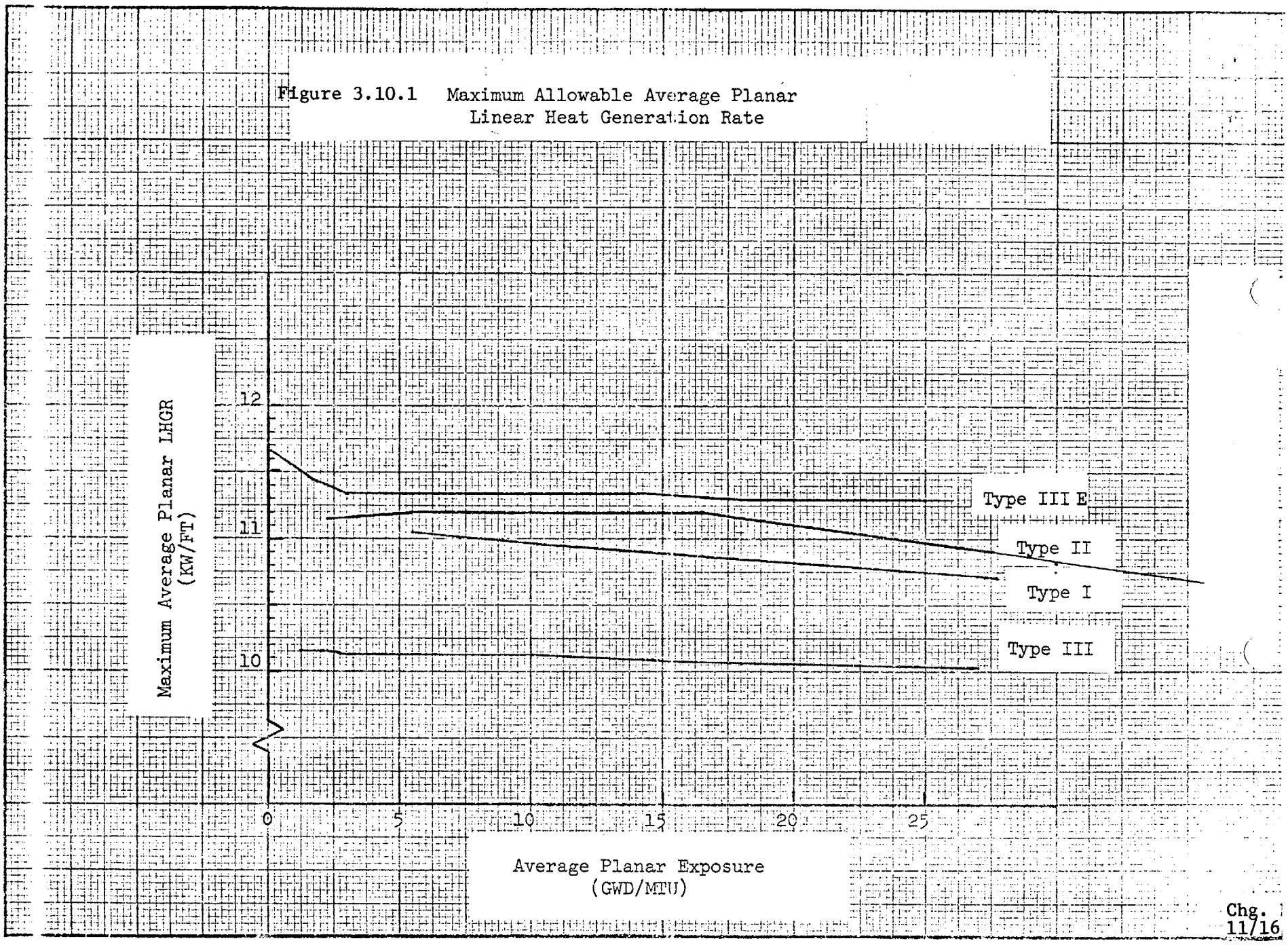

Figure 3.10.1 Maximum Allowable Average Planar Linear Heat Generation Rate

Chg. 11/16