NRC FORM 195 (2-76)

U.S. NUCLEAR REGULATORY COMMISSION

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DOCKET NUMBER: 50-305

FILE NUMBER:

TO: Mr. A. Schwencer

FROM: Wisconsin Public Service Corp.
Green Bay, Wisconsin
E. W. James

DATE OF DOCUMENT: 2/8/77

DATE RECEIVED: 2/14/77

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DESCRIPTION

Ltr. w/attached....re their 12/10/76 ltr....concerning Amdt. No. 22 to the OL/change No. 29 to the FSAR....regarding the results of the ECCS analysis.....

(3-P)

ENCLOSURE

ACKNOWLEDGED

DO NOT REMOVE

PLANT NAME: Kewaunee

SAFETY — FOR ACTION/INFORMATION — ENVIRO 2/16/77 RJL

	ASSIGNED AD:			ASSIGNED AD:
X	BRANCH CHIEF:	Schwencer (5)		BRANCH CHIEF:
X	PROJECT MANAGER:	Neighbors		PROJECT MANAGER:
X	LIC. ASST. :	Sheppard		LIC. ASST. :

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	PETERSON		CHECK	X	BUTLER		SITE ANALYSIS
	MELTZ			X	GRIMES		VOLLMER
	HELTEMES		AT & I				BUNCH
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NRC FORM 195 (2-76)

WISCONSIN PUBLIC SERVICE CORPORATION

P.O. Box 1200, Green Bay, Wisconsin 54305

February 8, 1977

Regulatory Docket File

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U.S. NUCLEAR REGULATORY COMMISSION
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Division of Operating Reactors
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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U.S. NUCLEAR REGULATORY COMMISSION
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ATTN: Mr. A. Schwencer, Chief
Operating Reactors Branch No. 1

Gentlemen:

REF: Docket 50-305
Operating License DPR-43

On December 10, 1976, we submitted proposed Amendment No. 22 to the Operating License for the Kewaunee Plant and provided as a basis Change No. 29 to the Kewaunee Plant FSAR. That change to the FSAR presented the results of the most recent ECCS analysis for the Kewaunee Plant for large breaks and was responsive to the Order of Modification. The analysis presented in the FSAR change only included the results of the $C_d = 0.4$ break.

We have been requested by Mr. Neighbors of your staff to provide a statement justifying the presentation of a single plant specific large break case rather than the previously standard three break case format utilized in previous submittals. This letter is in response to that request.

The recalculation of ECCS performance was required due to discovery that upper head fluid temperatures did not correspond to the assumed temperature employed in our previous ECCS analysis which utilized the March 15, 1975 Westinghouse Model. This effect of increased upper head fluid temperature upon ECCS performance was addressed in a letter from Mr. C. Eigheldinger of Westinghouse to Mr. V. Stello of the Nuclear Regulatory Commission dated August 13, 1976. Westinghouse evaluated the effect of increased upper head fluid temperature in two loop plants with 14 x 14 fuel design employing the October, 1975, ECCS Model and presented the results in WCAP 8854 September, 1976, "Westinghouse ECCS Two-Loop Plant Sensitivity Studies (14 x 14)." The plant configuration chosen for the sensitivity studies of WCAP 8854 was determined to be the most limiting with respect to ECCS performance, based upon the following considerations:

1) Reactor power is the highest of any operating two-loop plant.

2) The core flooding rate is the lowest of any operating two-loop plant.

3) The containment pressure during the transient is the lowest of any operating two-loop plant.

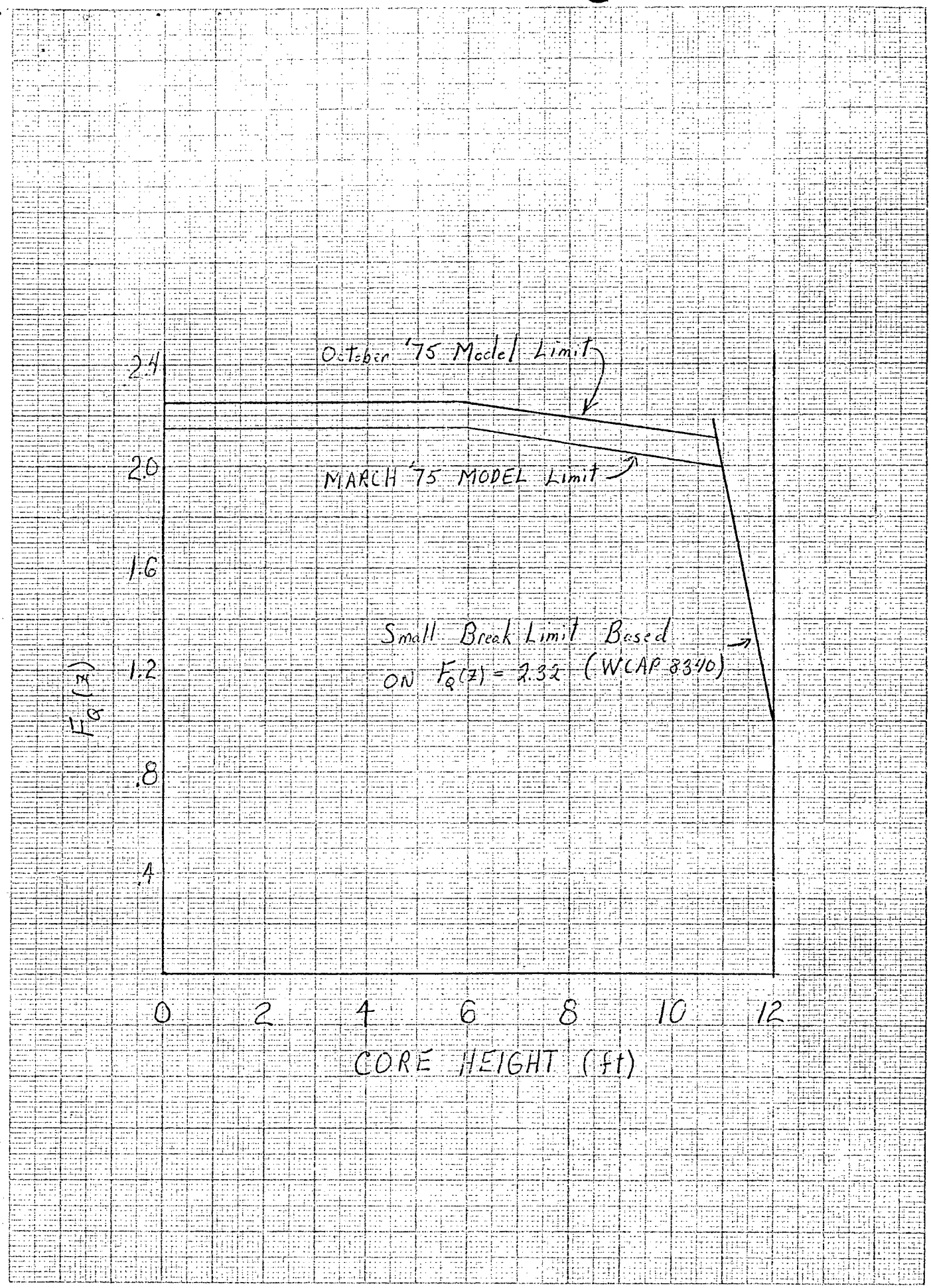
As demonstrated in WCAP 8854, the break which resulted in the highest calculated clad temperature was a double ended guillotine break of the reactor coolant system cold leg piping with a Moody discharge coefficient (C_D) of 0.4. This limiting break is consistent with all previous two-loop plant analyses, break spectra and sensitivity studies. Since the assumptions of WCAP 8854 are similar to the Kewaunee Plant and the $C_D = 0.4$ break is clearly most limiting only the $C_D = 0.4$ break need be considered. We, therefore, have provided a single break in our submittal of December 10, 1976.

We were also requested to explain the variation of interrupts between the second and third line segments on Figure TS 3.10-2 in the absence of a revised small break analysis. The proposed Amendment No. 22 to the Technical Specifications included a revised F_Q (Z) vs. core height curve (Figure TS 3.10-2 "Hot Channel Factor Normalized Operating Envelope"). The change to this figure was in the area about the 11 ft. elevation where the intercept of the second and third line segments occurs. The small break analysis yields a peak kw/ft limit as a function of core height which is limiting at core elevations above eleven feet and is based upon an $F_Q = 2.32$ analysis presented in WCAP 8340. The large break analysis submitted on December 10, 1976, which employed the October 75 Westinghouse ECCS Model yielded a higher peak kw/ft limit than the previous analysis which was performed using the March 75 Westinghouse Model. The normalization of Figure TS 3.10-2 as proposed is based upon a Hot Channel Factor of 2.25, rather than the 2.15 value of the March 75 Model analysis, therefore, with fixed kw/ft limit applied at the top of core for each normalized F_Q (Z) envelope the normalized limit at the top of core has shifted down by 2.15/2.25. The attached figure presents the various limits in F_Q space which is directly related to average kw/ft.

Very truly yours,

E. W. James
Senior Vice President
Power Supply & Engineering

EWJ:sna
Attach.


October '75 Model Limit
MARCH '75 MODEL Limit
Small Break Limit Based
ON $F_Q(z) = 2.32$ (WCAP 8340)
2.4
2.0
1.6
1.2
.8
.4
$F_Q(z)$
0
2
4
6
8
10
12
CORE HEIGHT (ft)