Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

December 16, 1983

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Dresden Station Unit 3
Supplemental Information to
Support a Reload Amendment
NRC Docket No. 50-249

Reference (a): B. Rybak letter to H. R. Denton
dated August 25, 1983.

Dear Mr. Denton:

During the review of Commonwealth Edison's application for the license amendment associated with Cycle 9 operation of Dresden Unit 3, it was determined that the review of the topical report covering reduced flow MCPR limits has not been completed by the NRC. In order to allow the use of the Exxon Nuclear developed reduced flow MCPR curves for Dresden 3, the NRC Staff has asked that we provide additional information to allow completion of their review on an accelerated basis.

Attached is a study of the effects of variable feedwater temperature on the reduced flow MCPR limit. The results of the study indicate that the assumption of a constant feedwater temperature provide a conservative bias to the calculation. The reduced flow MCPR limits supported in XN-NF-81-84(P) are therefore conservative relative to a mechanistic evaluation of the anticipated event defining the basis for the limit. This information will allow the NRC to complete their review and to grant the use of the reduced flow MCPR curves.

Please contact this office if you have any questions regarding this matter.

One signed original and forty copies of this letter are attached for your use.

Very truly yours,

B. Rybak

B. Rybak
Nuclear Licensing Administrator

lm

cc: R. Gilbert - NRR
NRC Resident Inspector - Dresden

A001
1/1

Attachment

7811N

REDUCED FLOW MCPR REANALYSIS WITH SCHEDULED FEEDWATER INLET TEMPERATURE

ENC has completed a reanalysis of the reduced flow MCPR with the feedwater inlet temperature scheduled as the steady state value. This reanalysis confirmed the conservative nature of the ENC reduced flow MCPR transient analysis reported in XN-NF-81-84(P) which assumed a constant inlet feedwater temperature.

The reduced flow MCPR analysis of XN-NF-81-84(P) assumed the two-pump runup transient would occur within a few minutes such that the feedwater inlet temperature would not have had time to change significantly; the inlet feedwater temperature (311 BTU/lbm enthalpy) was held constant throughout the transient. In a telephone conversation with J.C. Chandler (ENC) on December 9, 1983, C. Graves (NRC) requested that ENC determine the impact on the reduced flow MCPR of assuming that the inlet feedwater enthalpy followed the steady state schedule shown in Table I. Table I shows that the feedwater enthalpy increases as power increases.

Figure 1 summarizes the PTSBWR3 system transient of the reanalysis and shows that the power excursion is less with the feedwater inlet enthalpy schedule of Table I. This is because the increasing feedwater temperature eventually results in a higher core inlet temperature later in the new case. This decreases the rate of power rise due to void reactivity feedback. This reduced power rise in the scheduled enthalpy case results in a smaller MCPR change during the scheduled enthalpy case.

Figure 2 shows the reduced flow MCPR for both cases. Because of the smaller change in MCPR during the transient, the MCPR limit calculated for the inlet feedwater temperature schedule case is lower than in the constant inlet feedwater temperature case. The minimum in the MCPR curve, around 85% power, for the scheduled case is caused by the decreasing power slope shown in Figure 2.2. The conservatively extrapolated power slope of the licensing constant enthalpy case prevented this minimum.

Thus the MCPR limit of the constant inlet feedwater temperature case of XN-NF-81-84(P) is conservative and should be used for the license limit.

TABLE I

FEEDWATER INLET ENTHALPY SCHEDULE

Power (%)	Enthalpy (BTU/lbm)
38	246
55	274
63	282
75	294
99	314

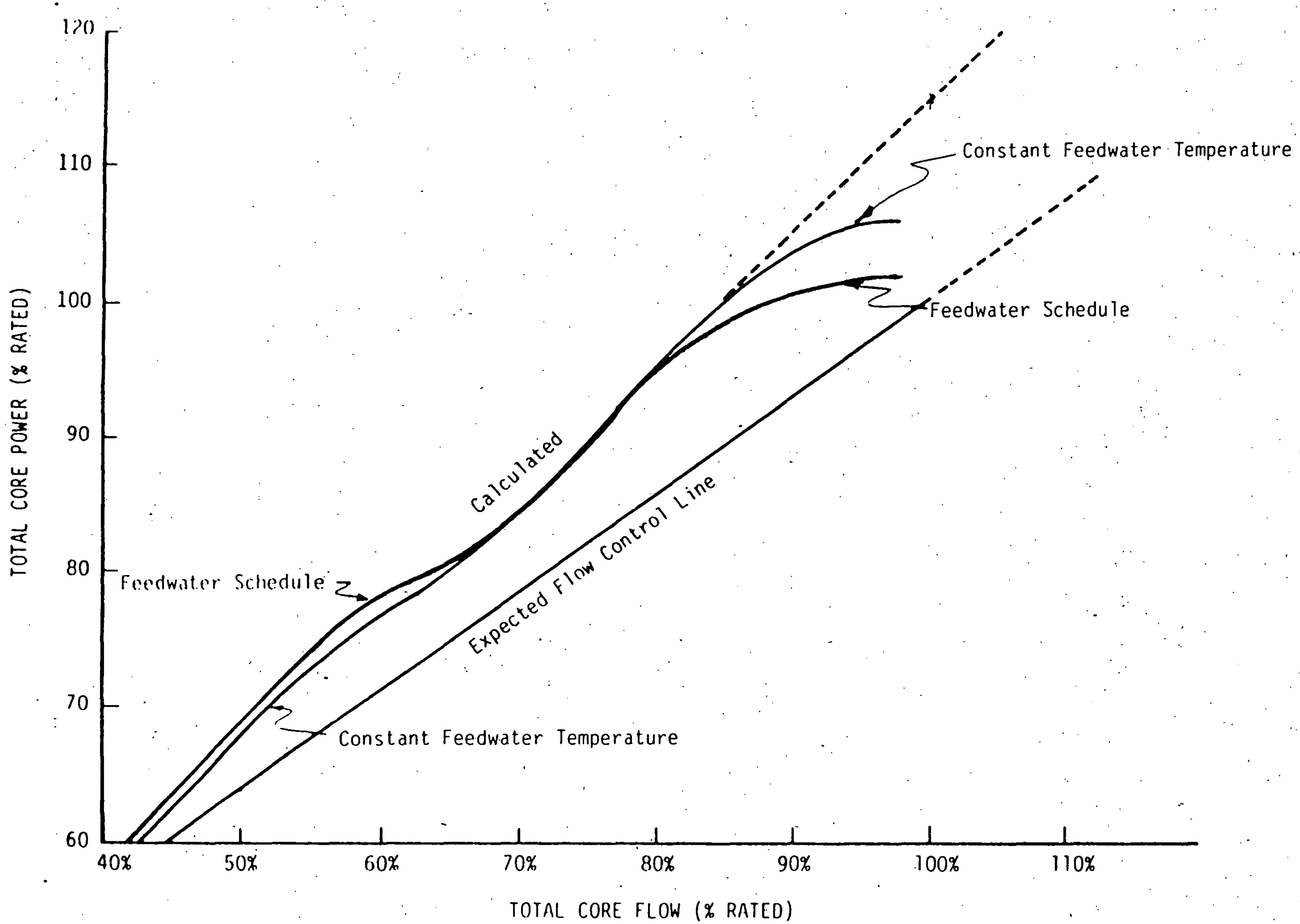

Figure 1 Expected and Calculated Power/Flow

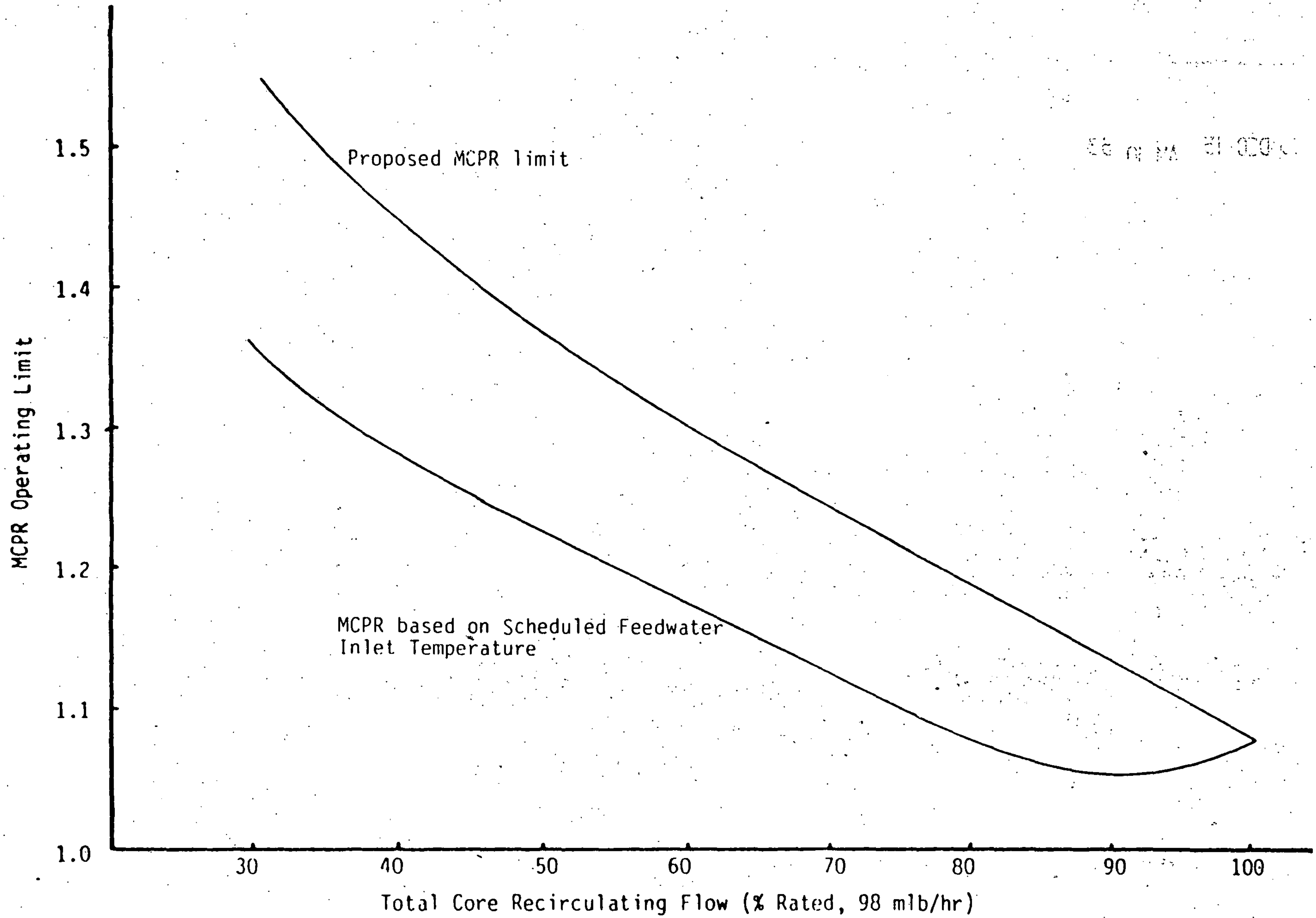

Figure 2 MCPR for All Conditions