

JUL 25 1977

Docket No. 50-336

Northeast Nuclear Energy Company  
ATTN: Mr. Donald C. Switzer  
President  
P. O. Box 270  
Hartford, Connecticut 06101

Gentlemen:

RE: MILLSTONE NUCLEAR POWER STATION UNIT NO. 2

The enclosed Order of Modification pertains to Facility Operating License No. DPR-65 issued for Millstone Nuclear Power Station Unit No. 2. The Order addresses errors in the ECCS performance evaluation submitted in accordance with 10 CFR §50.46.

The errors detected were of the nature of inputs to computer codes used in the small break LOCA analysis referenced for Millstone Unit No. 2. The impact of the errors does not effect the limiting (design basis) LOCA analysis and therefore no reduction of plant operating limits is required to accommodate the presence of the errors.

This Order confirms the appropriateness of Northeast Nuclear Energy Company's action of agreeing to submit, on a timely basis, an ECCS reevaluation using the Combustion Engineering evaluation model approved by the NRC staff. This commitment is contained in your letter of July 7, 1977.

A copy of the Order is being filed with the Office of the Federal Register for publication.

Sincerely,

Original signed by

George Lear, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Enclosure:  
Order for Modification  
of License

RSB: BOR  
\*RBaer  
7/15/77

\*SEE PREVIOUS YELLOW FOR CONCURRENCE

cc w/enclosure: See next page

OFFICE >	ORB#3	ORB#3	OELD	AD/ORS	NRR
SURNAME >	+DJaffe:acr	GLear	*JScinto	KRGoller	EGCase
DATE >	7/14/77	7/19/77	7/18/77	7/19/77	7/20/77

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Sincerely,

George Lear, Chief  
 Operating Reactors Branch #3  
 Division of Operating Reactors

Enclosure: RSB: DOR  
 Order for Modification  
 of License R. Baer *CHB* for  
 7/15/77  
 cc w/enclosure: See next page

*Handwritten signature and date: 7/18/77*

OFFICE →	ORB#3: DOR	C-ORB#3: DOR	OELD	AD-OR: DOR	D: DOR	NRR
SURNAME →	DJaffe	GLear	JScinto	KRGoeller	VSTello	EGCASE
DATE →	7/14/77	7/ 177	7/ 177	7/ 177	7/ 177	7/ 177

Northeast Nuclear Energy Company - 2 -

cc: William H. Cuddy, Esquire  
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One Constitution Plaza  
Hartford, Connecticut 06103

Waterford Public Library  
Rope Ferry Road, Route 156  
Waterford, Connecticut 06385

Northeast Nuclear Energy Company  
ATTN: Superintendent  
Millstone Plant  
P. O. Box 128  
Waterford, Connecticut 06385



The ECCS performance evaluation submitted by the Licensees was based upon a previously approved ECCS evaluation model developed by Combustion Engineering, Inc. (CE), the designer of the facility, to conform to the requirements of the Commission's ECCS Acceptance Criteria, 10 CFR Part 50, §50.46 and Appendix K. The evaluation indicated that with peak linear heat generation rate limited as set forth above, and with the other limits set forth in the facility's Technical Specifications, the ECCS cooling performance for the facility would conform to the criteria contained in 10 CFR §50.46(b) which govern calculated peak clad temperature, maximum cladding oxidation, maximum hydrogen generation, coolable geometry and long term cooling.

On July 6, 1977, the NRC staff was informed by the Licensees that errors had been discovered by Combustion Engineering (CE) in the small break ECCS analysis for the facility. This analysis is described in CENPD-137P, "Calculative Methods for the CE Small Break LOCA Evaluation Model," August 1974. The errors, consisting of non-conservative input values to the generic small break model are described below:

- (1) Peak Linear Heat Generation Rate (PLHGR) - The small break LOCA analysis assumed that the initial PLHGR was 15.25 Kw/ft while the present operating limit for the facility, contained in the Technical Specifications, is 16.30 Kw/ft. It is expected that upon reanalysis, the increase in initial PLHGR will cause an increase in the initial stored energy in the fuel and ultimately increase

the peak fuel clad temperature (PCT) predicted for the LOCA.

- (2) High Pressure Safety Injection (HPSI) Flow Rate - The small break LOCA analysis assumed a HPSI flow rate which was 12 percent higher than the flow measured at the facility. It is expected that upon reanalysis, the decrease in HPSI flow will decrease the cooling capability of the HPSI system resulting in an increase in the PCT.

CE has made a preliminary evaluation of these errors based on a set of analyses performed for another CE reactor. This analysis showed that for a decrease in HPSI flow of about 13% and an increase in PLHGR of 1.85 Kw/ft, the PCT for the worst small break accident increased 250°F over the previous worst small break PCT. Therefore, it was concluded that a specific Millstone Unit No. 2 analysis would result in less than a 400°F increase in PCT for the worst small break. The previous analysis showed that the PCT for the worst small break was 1606°F. Upon reanalysis it is expected that the small breaks will remain non-limiting for Millstone Unit No. 2. We concur with CE's conclusions.

Accordingly, the operating limit PLHGR, contained in the Technical Specifications, is still based upon the limiting large break LOCA, the calculation of which is unaffected by these errors. Therefore, the existing PLHGR for the facility remains appropriately conservative.

The staff has instructed the Licensees to provide a revised LOCA analysis for a spectrum of small breaks. The staff expects that when final revised calculations for the facility are submitted using the corrected plant specific model input data they will demonstrate that operation with a peak linear heat generation rate of 16.3 Kw/ft will fully conform to the criteria of 10 CFR §50.46(b). Such revised calculations, fully conforming to the requirements of 10 CFR §50.46, are to be provided for the facility as soon as possible.

Upon notification by the NRC staff on July 7, 1977, the Licensees promptly confirmed the conservatism of existing operating limits for the facility and committed by letter dated July 7, 1977, to provide a reanalysis to correct the errors. The NRC staff believes that the Licensees' action, under the circumstances, is appropriate and that this action should be confirmed by NRC Order.

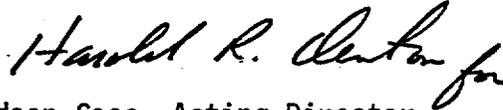
Copies of the following documents are available for public inspection in the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., 20555 and are being placed in the Commission's Local Public Document Room, the Waterford Public Library, Rope Ferry Road, Route 156, Waterford Connecticut: (1) Letter dated July 7, 1977 from Northeast Nuclear Energy Company to G. Lear, Chief, Operating Reactors Branch No. 3, and (2) This Order for Modification of License, In the Matter of Northeast Nuclear Energy Company, The Hartford Electric Light Company, Western Massachusetts Electric Company, and Connecticut Light and Power Company (Millstone Nuclear Power Station, Unit No. 2), Docket No. 50-336.

III.

Accordingly, pursuant to the Atomic Energy Act of 1954, as amended, and the Commission's Rules and Regulations in 10 CFR Parts 2 and 50, IT IS ORDERED THAT Facility Operating License No. DPR-65 is hereby amended by adding the following new provision:

As soon as possible, the Licensees shall submit a re-evaluation of ECCS cooling performance calculated in accordance with Combustion Engineering Company's Evaluation Model approved by the NRC staff and corrected for the errors described herein.

FOR THE NUCLEAR REGULATORY COMMISSION



Edson Case, Acting Director  
Office of Nuclear Reactor Regulation

Dated In Bethesda, Maryland  
this 25th day of July 1977.