Docket No. 50-271

FEB 27 1989

Mr. R. W. Capstick
Licensing Engineer
Vermont Yankee Nuclear Power
Corporation
580 Main Street
Bolton, Massachusetts 01740-1398

Dear Mr. Capstick:

SUBJECT: ISSUANCE OF AMENDMENT NO. 109 TO DPR-28 - VERMONT YANKEE NUCLEAR POWER STATION (TAC 71429)

The Commission has issued the enclosed Amendment No. 109 to Facility Operating License No. DPR-28 for the Vermont Yankee Nuclear Power Station. This amendment consists of changes to the Technical Specifications in response to your application dated November 30, 1988, with clarification provided by letters dated December 21, 1988, and January 6, 1989.

This amendment changes the Technical Specifications to permit the use of a revised Fuel Cladding Integrity Safety Limit for use in calculating critical power operating limits.

A copy of our Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

Morton B. Fairtile, Project Manager
Project Directorate I-3
Division of Reactor Projects I/II

Enclosures:
1. Amendment No. 109 to DPR-28
2. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION: Docket File, NRC & Local PDRs, PDI-3 r/f, SVarga, BBoger, MRushbrook, VRooney, OGC, DHagan, EJordan, TBarnhard (4), WJones, EButcher, ACRS (10), GPA/PA, ARM/LFMB, RWessman, w Hodges

OFC	:PDI-3 MBF	:PDI-3	:OGC	:D/PDI-3	:RSB	
NAME	:MFairtile	:MRushbrook	:	:RWessman	:W. Hodges	:
DATE	: 2/23/88	: 2/9/88	: 2/9/88	:2/27/88	:2/6/89	:

OFFICIAL RECORD COPY

CP-1
DFOL Ce
1/1

8903060075 890227
PDR ADOCK 05000271
P PDC

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

FEB 27 1989

Docket No. 50-271

Mr. R. W. Capstick
Licensing Engineer
Vermont Yankee Nuclear Power
Corporation
580 Main Street
Bolton, Massachusetts 01740-1398

Dear Mr. Capstick:

SUBJECT: ISSUANCE OF AMENDMENT NO. 109 TO DPR-28 - VERMONT YANKEE NUCLEAR POWER STATION (TAC 71429)

The Commission has issued the enclosed Amendment No. 109 to Facility Operating License No. DPR-28 for the Vermont Yankee Nuclear Power Station. This amendment consists of changes to the Technical Specifications in response to your application dated November 30, 1988, with clarification provided by letters dated December 21, 1988, and January 6, 1989.

This amendment changes the Technical Specifications to permit the use of a revised Fuel Cladding Integrity Safety Limit for use in calculating critical power operating limits.

A copy of our Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

Morton B. Fairtile

Morton B. Fairtile, Project Manager
Project Directorate I-3
Division of Reactor Projects I/II

Enclosures:
1. Amendment No. 109to DPR-28
2. Safety Evaluation

cc w/enclosures:
See next page

Mr. R. W. Capstick
Vermont Yankee Nuclear Power Corporation

Vermont Yankee Nuclear Power Station

cc:

Mr. J. Gary Weigand
President & Chief Executive Officer
Vermont Yankee Nuclear Power Corp.
R.D. 5, Box 169
Ferry Road
Brattleboro, Vermont 05301

W. P. Murphy, Vice President
and Manager of Operations
Vermont Yankee Nuclear Power Corp.
R.D. 5, Box 169
Ferry Road
Brattleboro, Vermont 05301

Mr. John DeVincentis, Vice President
Yankee Atomic Electric Company
580 Main Street
Bolton, Massachusetts 01740-1398

Mr. George Sterzinger, Commissioner
Vermont Department of Public Service
120 State Street, 3rd Floor
Montpelier, Vermont 05602

New England Coalition on Nuclear
Pollution
Hill and Dale Farm
R.D. 2, Box 223
Putney, Vermont 05346

Public Service Board
State of Vermont
120 State Street
Montpelier, Vermont 05602

Vermont Public Interest Research
Group, Inc.
43 State Street
Montpelier, Vermont 05602

G. Dean Weyman
Chairman, Board of Selectman
Post Office Box 116
Vernon, Vermont 05354

William Russell, Regional Administrator
Region I Office
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

Raymond N. McCandless
Vermont Division of Occupational
and Radiological Health
Administration Building
Montpelier, Vermont 05602

Mr. R. W. Capstick
Vermont Yankee Nuclear
Power Corporation
580 Main St.
Bolton, Massachusetts 01740-1398

Honorable John J. Easton
Attorney General
State of Vermont
109 State Street
Montpelier, Vermont 05602

R. K. Gad III
Ropes & Gray
225 Franklin Street
Boston, Massachusetts 02110

Conner & Wetterhahn, P.C.
Suite 1050
1747 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

cc:

Ellyn R. Weiss, Esq.
Harmon & Weiss
2001 S Street, N.W.
Washington, D.C. 20009

David J. Mullett, Esq.
Special Assistant Attorney General
Vermont Depart. of Public Service
120 State Street
Montpelier, VT 05602

Jay Gutierrez
Regional Counsel
USNRC, Region I
475 Allendale Road
King of Prussia, PA 19406

G. Dana Bisbee, Esq.
Office of the Attorney General
Environmental Protection Bureau
State House Annex
25 Capitol Street
Concord, NH 03301-6397

Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. Gustave A. Linenberger, Jr.
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 176
Vernon, Vermont 05354

Carol S. Sneider, Esq.
Assistant Attorney General
Office of the Attorney General
One Ashburton Place, 19th Floor
Boston, MA 02108

Geoffrey M. Huntington, Esquire
Office of the Attorney General
Environmental Protection Bureau
State House Annex
25 Capitol Street
Concord, NH 03301-6397

Charles Bechhoefer, Esq.
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dr. James H. Carpenter
Administrative Judge
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Adjudicatory File (2)
Atomic Safety and Licensing Board
Panel Docket
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Distribution of Amendment No. 109 to DPR-28 - VERMONT YANKEE NUCLEAR POWER STATION

Distribution:
Docket 50-271
NRC PDR
Local PDR
PD I-3 Reading
S. Varga
G. Lainas
B. Boger
OGC
V. Rooney
M. Fairtile
M. Rushbrook
Dennis Hagan
E. Jordan
T. Meek (4)
Wanda Jones - P-522 Phillips Building
E. Butcher
GPA/PA - 2G5 OWFN
ARM/LFMB
Wayne Hodges
J. Wiggins, Region I
R. Wessman

OF01
1/1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

VERMONT YANKEE NUCLEAR POWER CORPORATION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 109
License No. DPR-28

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Vermont Yankee Nuclear Power Corporation (the licensee) dated November 30, 1988, as supplemented December 21, 1988 and January 6, 1989, 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;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C(2) of Facility Operating License No. DPR-28 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 109, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective 30 days after the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Richard H. Wessman, Director
Project Directorate I-3
Division of Reactor Projects I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 27, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 109

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Replace the following page of the Appendix A Technical Specifications with the enclosed page. The revised page is identified by amendment number and contains vertical lines indicating the areas of change.

Remove Pages	Insert Pages
5	5
180-01	180-01

1.1 SAFETY LIMIT

1.1 FUEL CLADDING INTEGRITY

Applicability:

Applies to the interrelated variable associated with fuel thermal behavior.

Objective:

To establish limits below which the integrity of the fuel cladding is preserved.

Specification:

A. Bundle Safety Limit (Reactor Pressure >800 psia and Core Flow >10% of Rated)

When the reactor pressure is >800 psia and the core flow is greater than 10% of rated, either:

1. For a core loading which consists of at least two successive reloads of P8x8R, BP8x8R, GE8x8E, or GE8x8EB fuel with high (≥1.04) beginning-of-life bundle R-factor (one reload of which is fuel in its first cycle of operation), the existence of a Minimum Critical Power Ratio (MCPR) of less than 1.04 (1.05 for Single Loop Operation) shall constitute violation of the Fuel Cladding Integrity Safety Limit (FCISL);

   or

2. For all other core loadings, the existence of a MCPR less than 1.07 (1.08 for Single Loop Operation) shall constitute violation of the FCISL.

2.1 LIMITING SAFETY SYSTEM SETTING

2.1 FUEL CLADDING INTEGRITY

Applicability:

Applies to trip setting of the instruments and devices which are provided to prevent the nuclear system safety limits from being exceeded.

Objective:

To define the level of the process variable at which automatic protective action is initiated.

Specification:

A. Trip Settings

The limiting safety system trip settings shall be as specified below:

1. Neutron Flux Trip Settings

   a. APRM Flux Scram Trip Setting (Run Mode)

   When the mode switch is in the RUN position, the APRM flux scram trip setting shall be as shown on Figure 2.1.1 and shall be:

TABLE 3.11.2
VERMONT YANKEE NUCLEAR POWER STATION
TECHNICAL SPECIFICATION MCPR OPERATING LIMITS

Value of "N" in RBM Equation (1)	Average Control Rod Scram Time	Cycle Exposure Range	MCPR Operating Limits (2&3)
42%	Equal or better than L.C.O. 3.3 C.1.1	BOC to EOC-2 GWD/T	1.26
		EOC-2 GWD/T to EOC-1 GWD/T	1.26
		EOC-1 GWD/T to EOC	1.27
	Equal or better than L.C.O. 3.3 C.1.2	BOC to EOC-2 GWD/T	1.26
		EOC-2 GWD/T to EOC-1 GWD/T	1.28
		EOC-1 GWD/T to EOC	1.32
41%	Equal or better than L.C.O. 3.3 C.1.1	BOC to EOC-2 GWD/T	1.22
		EOC-2 GWD/T to EOC-1 GWD/T	1.22
		EOC-1 GWD/T to EOC	1.27
	Equal or better than L.C.O. 3.3 C.1.2	BOC to EOC-2 GWD/T	1.22
		EOC-2 GWD/T to EOC-1 GWD/T	1.28
		EOC-1 GWD/T to EOC	1.32
≤40%	Equal or better than L.C.O. 3.3 C.1.1	BOC to EOC-2 GWD/T	1.22
		EOC-2 GWD/T to EOC-1 GWD/T	1.22
		EOC-1 GWD/T to EOC	1.27
	Equal or better than L.C.O. 3.3 C.1.2	BOC to EOC-2 GWD/T	1.22
		EOC-2 GWD/T to EOC-1 GWD/T	1.28
		EOC-1 GWD/T to EOC	1.32

NOTES:

(1) The Rod Block Monitor (RBM) trip setpoints are determined by the equation shown in Table 3.2.5 of the Technical Specifications.

(2) The current analysis for MCPR Operating Limits does not include the 7x7, 8x8, 8x8R fuel types, or any fuel types with R-factors less than 1.04 as described in Section 1.1.A. On this basis, if any of these fuel types are to be inserted or re-inserted, they will be evaluated in accordance with 10CFR50.59 to ensure that the above limits are bounding for these fuel types.

(3) MCPR Operating limits are increased by 0.01 for single loop operation.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 109

TO FACILITY OPERATING LICENSE NO. DPR-28

VERMONT YANKEE NUCLEAR POWER CORPORATION

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated November 30, 1988, with clarification submitted December 21, 1988, and January 6, 1989, the Vermont Yankee Nuclear Power Corporation (the licensee) requested changes to the Vermont Yankee Radiological Technical Specifications (TS) as incorporated in Facility Operating License DPR-28. These changes are:

1. Revise Safety Limit 1.1A to specify that, for certain fuel types, a MCPR equal to or greater than 1.04 (1.05 for single loop operation) constitutes compliance with the fuel cladding integrity safety limit.

2. Revise LCO 3.11.2 to adjust MCPR Operating Limits so that they are based on a MCPR Safety Limit of 1.04.

2.0 EVALUATION

General Design Criterion 10 requires that the reactor core be designed with appropriate margin, to assure that specified acceptable fuel design limits are not exceeded during any condition of normal operation, including the effects of abnormal operational transients. In order to avoid fuel damage caused by overheating of the cladding, transient consequences are limited such that more than 99.9% of the fuel rods would be expected to avoid boiling transition during a transient event. Because of this, the staff has required a safety limit stated in terms of a statistically determined Minimum Critical Power Ratio (MCPR). The current MCPR Fuel Cladding Integrity Safety Limit of 1.07 for reload cores (Ref. 1) was established in 1978 (Ref. 2) based on fuel design characteristics typical of those utilized at the time.

By letter dated December 27, 1987 (Ref. 3), the staff accepted for referencing in license applications use of a MCPR Fuel Cladding Integrity Safety Limit of 1.04. The use of the 1.04 MCPR Fuel Cladding Integrity Safety Limit for plants of the Vermont Yankee type is accepted for application to the second successive reload core of P8X8R, BP8x8R, GE8x8E, or GE8x8EB fuel types with high bundle R-factor (1.04).

Proposed Technical Specification 1.1A limits use of the 1.04 MCPR Safety Limit to applications which meet the above criterion.

As discussed in Reference 3: "Under this criterion the bundles nearest the MCPR operating limit during the operating cycle will be either the fresh bundles or those bundles exposed for one cycle only. The remaining exposed fuel (i.e., the fuel entering the third cycle of operation) could not be operated near their MCPR limits without driving the high bundle R-factor fuel to powers in excess of their Technical Specification limits."

In the proposed Technical Specifications, for single loop operations, the MCPR Safety Limit is raised by 0.01 to 1.05 to account for additional instrumentation uncertainties under single loop operating conditions, as discussed in the staff safety evaluation accompanying License Amendment No. 94 dated August 4, 1986.

The proposed changes to Technical Specifications 1.1A and 3.11.2 place the same limitations on use of a 1.04 MCPR Fuel Cladding Integrity Safety Limit as were found acceptable by the staff in Reference 3. The proposed changes are, therefore, acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously published a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR §51.22(c)(9). Pursuant to 10 CFR §51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 REFERENCES

1. "General Electric Standard Application for Reactor Fuel," NEDE-24011-P-A-6, April 1983.

2. "Basis for 8x8 Retrofit Fuel Thermal Analysis Application," NEDE-24131, September 1978.

3. Letter (and attachment) from A. C. Thadani, NRC, to J. S. Charnley, GE, dated December 27, 1987, "Acceptance for Referencing of Amendment 14 to General Electric Licensing Topical Report NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel, (TAC No. 60113)."

Principal Contributor: V. Rooney

Dated: February 27, 1989