

April 20, 2001

Mr. Michael A. Balduzzi
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, VT 05302-7002

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - ISSUANCE OF
AMENDMENT RE: HPCI AND RCIC ISOLATION (TAC NO. MB0407)

Dear Mr. Balduzzi:

The Commission has issued the enclosed Amendment No. 202 to Facility Operating License DPR-28 for the Vermont Yankee Nuclear Power Station, in response to your application dated November 1, 2000.

The amendment revises the operability requirement for high pressure coolant injection (HPCI) and reactor core isolation cooling low steam line pressure isolation instrumentation to coincide with system operability requirements. The proposed change eliminates the need to open manual containment isolation valves under administrative control during reactor heatup, reduces the potential for operator error when closing these valves (potential for leaving valve mispositioned) and clarifies the steam line low pressure isolation function description. An administrative change to correct the HPCI High Steam Line d/p instrument component numbers was also proposed to ensure the accuracy of isolation instrumentation information.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Robert M. Pulsifer, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures: 1. Amendment No. 202 to
License No. DPR-28
2. Safety Evaluation

cc w/encls: See next page

Vermont Yankee Nuclear Power Station

cc:

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. David R. Lewis
Shaw, Pittman, Potts & Trowbridge
2300 N Street, N.W.
Washington, DC 20037-1128

Ms. Christine S. Salembier, Commissioner
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620-2601

Mr. Michael H. Dworkin, Chairman
Public Service Board
State of Vermont
112 State Street
Montpelier, VT 05620-2701

Chairman, Board of Selectmen
Town of Vernon
P.O. Box 116
Vernon, VT 05354-0116

Mr. Richard E. McCullough
Operating Experience Coordinator
Vermont Yankee Nuclear Power Station
P.O. Box 157
Governor Hunt Road
Vernon, VT 05354

G. Dana Bisbee, Esq.
Deputy Attorney General
33 Capitol Street
Concord, NH 03301-6937

Chief, Safety Unit
Office of the Attorney General
One Ashburton Place, 19th Floor
Boston, MA 02108

Ms. Deborah B. Katz
Box 83
Shelburne Falls, MA 01370

Mr. Raymond N. McCandless
Vermont Department of Health
Division of Occupational
and Radiological Health
108 Cherry Street
Burlington, VT 05402

Mr. Gautam Sen
Licensing Manager
Vermont Yankee Nuclear Power
Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, VT 05302-7002

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

Director, Massachusetts Emergency
Management Agency
ATTN: James Muckerheide
400 Worcester Rd.
Framingham, MA 01702-5399

Jonathan M. Block, Esq.
Main Street
P. O. Box 566
Putney, VT 05346-0566

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ACCESSION NO. ML010850389

*Input received 3/19/01. No major changes made.

OFFICE	PDI-2/PM	PDI-2/LA	EEIB*	OGC	PDI-2/SC
NAME	RPulsifer	TClark	EMarinos	CMarco	JClifford
DATE	4/20/01	4/20/01	3/19/01	4/6/01	4/20/01

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VERMONT YANKEE NUCLEAR POWER CORPORATION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 202

License No. DPR-28

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by the Vermont Yankee Nuclear Power Corporation (the licensee) dated November 1, 2000, 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 3.B of Facility Operating License No. DPR-28 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 202, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: April 20, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 202

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

46
47

77

Insert

46
47
48a
77

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 202 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 1, 2000, the Vermont Yankee Nuclear Power Corporation (VYNPC, the licensee) submitted a request to amend the Vermont Yankee (VY) Nuclear Power Station Technical Specifications (TSs). The amendment revises the operability requirement for high pressure coolant injection (HPCI) and reactor core isolation cooling (RCIC) low steam line pressure isolation instrumentation to coincide with system operability requirements. The proposed change eliminates the need to open manual containment isolation valves under administrative control during reactor heatup, reduces the potential for operator error when closing these valves (potential for leaving valve mispositioned) and clarifies the steam line low pressure isolation function description. An administrative change to correct the HPCI High Steam Line d/p instrument component numbers was also proposed to ensure the accuracy of isolation instrumentation information.

2.0 BACKGROUND

The proposed changes will revise the limiting conditions for operation and clarify the description of the HPCI and RCIC isolation instrumentation. The changes specifically relate to the following TS changes:

1. TS Table 3.2.2: Delete Note 12 and add Note 13 under "Minimum Number of Operable Instrument Channels per Trip System" for "Low HPCI Steam Supply Pressure" and "Low RCIC Steam Supply Pressure" trip functions. The applicability of Note 12 to all other trip functions listed in the Table 3.2.2 for isolation remains unchanged. Correct the referenced instrument number for High Steam Line d/p from "DPIS-23-77/78" to "DPIS-23-76/77."
2. TS Table 3.2.2 Notes: Add new Note 13 which is as follows:

Note 13: Whenever the High-Pressure Cooling Injection System and Reactor Core Isolation Cooling System are required to be operable in accordance with Specification 3.5, the low steam supply pressure automatic isolation trip system shall be operable, except as provided below:

- a. With the automatic isolation trip function not maintained, restore isolation capability within 1 hour or take the ACTION required by Table 3.2.2.
 - b. With one or more required channels inoperable, place inoperable channel(s) in the tripped condition within 24 hours or take the ACTION required by Table 3.2.2.
3. TS 3.2 Bases: Delete “steam supply pressure” from second paragraph in page 77 and add the following:

The HPCI and RCIC steam supply pressure instrumentation is provided to isolate the systems when pressure may be too low to continue operation. These isolations are for equipment protection. However, they also provide a diverse signal to indicate a possible system break. These instruments are included in Technical Specifications because of the potential for possible system initiation failure if not properly tested.

The Note 12 to TS Table 3.2.2 reads as follows:

Whenever Primary Containment integrity is required by Specification 3.7.A.2, there shall be two operable or tripped trip systems for each Trip Function, except as provided for below:

1. With one or more automatic functions with isolation capability not maintained restore isolation capability in 1 hour or take ACTION required by Table 3.2.2.
2. With one or more channels inoperable, place the inoperable channel(s) in the tripped condition within:
 - a. 12 hours for trip functions common to RPS instrumentation, and
 - b. 24 hours for trip functions not common to RPS instrumentation,

Or, initiate the ACTION required by Table 3.2.2.

3.0 EVALUATION

3.1 Adding Note 13

The licensee stated that the proposed changes are necessary to allow reactor heatup with the HPCI and RCIC steam supply line isolation valves open, and to correct HPCI differential instrument component identification. The proposed changes will:

- a. Eliminate the need to administratively control the opening of the manual containment isolation valves for the purpose of equalizing pressure around the HPCI and RCIC steam supply line isolation valves prior to placing the system in service.
- b. Clarify the purpose of the HPCI and RCIC low steam supply isolation function.

- c. Provide accurate identification of the HPCI differential pressure instruments.

The new Note 13 is as restrictive as Note 12 in terms of allowable time to restore channel operability and isolation function and is consistent with NUREG-1433, Revision 1, Section 3.3.6.1 actions.

TS 3.7.A.2 specifies that primary containment integrity is required at all times when the reactor is critical or when reactor water temperature is greater than 212 °F. TS 3.5 specifies that the HPCI and RCIC systems are required to be operable whenever irradiated fuel is in the reactor vessel and reactor steam pressure is greater than 150 psig. The operability requirements for the low steam pressure trip function for HPCI and RCIC are different during the period of reactor heatup between the time that the reactor water temperature is greater than 212 °F and that the reactor steam pressure is greater than 150 psig. The main difference between these two notes is that Note 12 requires operability during this period, but Note 13 does not. The licensee indicated that typically, this period is less than 2 hours and the likely consequence of a steam line break outside containment during this time is low because of the low steam pressure.

Each of the HPCI and RCIC steam supply lines has two containment isolation valves. These valves are normally open when the system is required to be operable to facilitate prompt initiation of core cooling. If needed, these valves also serve the containment isolation function, with automatic closure on indication of a steam supply line break. The isolation trip function will isolate the four containment isolation valves of the HPCI and RCIC systems when the steam supply pressures are low (70 psig for HPCI and 50 psig for RCIC). Low steam pressure is a normal condition during the reactor heatup period. The licensee stated that this change is necessary to allow reactor heatup with the HPCI and RCIC steam supply line isolation valves open. This will eliminate the need to administratively control the opening of manual containment isolation valves for the purpose of equalizing pressure around HPCI and RCIC steam supply line isolation valves prior to placing the systems in service.

The licensee stated that the proposed change does not significantly affect the ability of the containment isolation. If a steam line break occurs during this period of reactor heatup, the steam line space temperature, main steam tunnel temperature, and steam line differential pressure trip functions, listed in TS Table 3.2.2, will initiate containment isolation to automatically close containment isolation valves under Note 12. The capability for remote manual closure of these valves from the control room will also be available in the event containment isolation is necessary during reactor heatup between 212 °F (0 psig) and 150 psig. This will meet the TS requirements for primary containment integrity. The licensee's accident analysis evaluated steam line breaks outside containment, and considered HPCI and RCIC steam line break scenarios. The results are bounded by the design-basis accident of a complete severance of one main steam line outside secondary containment as described in the VY Updated Final Safety Analysis Report (UFSAR) Section 14.6. Having the steam line isolation valves open between 212 °F and 150 psig does not change the results of the bounding safety analysis.

Because these valves are normally open during operation, the valves would still close on an isolation signal, and the bounding safety analysis remains unchanged, the staff has determined the changes are acceptable.

3.2 Instrument Identification Change

The identification number for Trip Function - High Steam Line d/p (Steam Line Break) (DPIS-23-77/78) in Table 3.2.2 was changed to High Steam Line d/p (Steam Line Break) (DPIS-23-76/77) to correct an instrument identification. The correction of the instrument number was administrative in nature and is acceptable to the staff.

3.3 Bases Change

The proposed change of the TS Bases clarified the VY design-basis for HPCI and RCIC steam supply pressure instrumentation. The HPCI and/or RCIC high flow and temperature instrumentation is provided to detect a break in the HPCI and/or RCIC piping. This change of Bases is consistent with the proposed change in TS 3.2.B, Table 3.2.2, and the staff has no objection.

3.4 Summary

The proposed changes will eliminate the need to administratively control the opening of the manual containment isolation valves for equalizing pressure around HPCI and RCIC steam supply line isolation valves prior to placing the system in service. The new Note 13 to TS Table 3.2.2 is as restrictive as the current Note 12 in terms of allowable time to restore instrument channel operability and isolation function. The licensee's accident analysis with the proposed changes did not adversely impact the results of the HPCI and RCIC high energy line break analyses. Also, the instrument identification change was strictly an administrative change. Based on the preceding review, the staff concludes that the proposed changes will continue to assure the HPCI and RCIC containment isolation function, and therefore, are acceptable .

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Vermont State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in 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 issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (65 FR 77928). 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.

6.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: Subinoy Mazumdar
Chang-Yang Li

Date: April 20, 2001