June 6, 1985

Docket No. 50-271

Mr. R. W. Capstick
Licensing Engineer
Vermont Yankee Nuclear Power Corporation
1671 Worcester Road
Framingham, Massachusetts 01701

Dear Mr. Capstick:

The Commission has issued the enclosed Amendment No. 88 to Facility Operating License No. DPR-28 for the Vermont Yankee Nuclear Power Station. The amendment consists of changes to the Technical Specifications in response to your application dated July 22, 1982, with clarifying information provided by letter dated July 20, 1983.

The amendment revises the Technical Specifications to raise the suppression pool temperature limit during normal operation from 90°F to 100°F.

A copy of the Safety Evaluation is also enclosed.

Sincerely,

Original signed by/

Vernon L. Rooney, Project Manager
Operating Reactors Branch #2
Division of Licensing

Enclosures:
1. Amendment No. 88 to License No. DPR-28
2. Safety Evaluation

cc w/enclosure:
See next page

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

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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. 88
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 July 22, 1982, as supplemented July 20, 1983, 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. 88 , 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 the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: June 6, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 88

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Revise the Technical Specifications as follows:

Remove	Insert
126	126
139	139
139a	139a

3.7 LIMITING CONDITIONS FOR OPERATION

3.7 STATION CONTAINMENT SYSTEMS

Applicability:

Applies to the operating status of the primary and secondary containment systems.

Objective:

To assure the integrity of the primary and secondary containment systems.

Specification:

A. Primary Containment

1. Whenever primary containment is required, the volume and temperature of the water in the suppression chamber shall be maintained within the following limits:

   a. Maximum Water Temperature during normal operation - 100°F.

   b. Maximum Water Temperature during any test operation which adds heat to the suppression pool - 100°F.

   c. If Torus Water Temperature exceeds 110°F, initiate an immediate scram of the reactor. Power operation shall not be resumed until the pool temperature is reduced below 100°F.

   d. During reactor isolation conditions, the reactor pressure vessel shall be depressurized to less than 200 psig at normal cooldown rates if the torus water temperature exceeds 120°F.

4.7 SURVEILLANCE REQUIREMENTS

4.7 STATION CONTAINMENT SYSTEMS

Applicability:

Applies to the primary and secondary containment system integrity.

Objective:

To verify the integrity of the primary and secondary containments.

Specification:

A. Primary Containment

1. The suppression chamber water level and temperature shall be checked once per shift. A visual inspection of the suppression chamber interior including water line regions and the interior painted surfaces above the water line shall be made at each refueling outage. Whenever there is indication of relief valve operation which adds heat to the suppression pool, the pool temperature shall be continually monitored and also observed and logged every 5 minutes until the heat addition is terminated. Whenever there is indication of relief valve operation with the temperature of the suppression pool reaching 160°F or more and the primary coolant system pressure greater than 200 psig, an external visual examination of the suppression chamber shall be conducted before resuming power operation.

3.7.A (cont'd)

Using a 50°F rise (Section 5.2.4 FSAR) in the suppression chamber water temperature and a minimum water volume of 68,000 ft^3, the 170°F temperature which is used for complete condensation would be approached only if the suppression pool temperature is 120°F prior to the DBA-LOCA. Maintaining a pool temperature of 100°F will assure that the 170°F limit is not approached.

Experimental data indicate that excessive steam condensing loads can be avoided if the peak temperature of the suppression pool is maintained below 160°F during any period of relief valve operation with sonic conditions at the discharge exit. Specifications have been placed on the envelope of reactor operating conditions so that the reactor can be depressurized in a timely manner to avoid the regime of potentially high suppression chamber loadings.

In addition to the limits on temperature of the suppression chamber pool water, operating procedures define the action to be taken in the event a relief valve inadvertently opens or sticks open. This action would include: (1) use of all available means to close the valve, (2) initiate suppression pool water cooling heat exchangers, (3) initiate reactor shutdown, and (4) if other relief valves are used to depressurize the reactor, their discharge shall be separated from that of the stuck-open relief valve to assure mixing and uniformity of energy insertion to the pool.

Double isolation valves are provided on lines which penetrate the primary containment and open to the free space of the containment. Closure of one of the valves in each line would be sufficient to maintain the integrity of the pressure suppression system. Automatic initiation is required to minimize the potential leakage paths from the containment in the event of a loss-of-coolant accident. Details of the isolation valves are discussed in Section 5.2 of the FSAR.

The purpose of the vacuum relief valves is to equalize the pressure between the drywell and suppression chamber and suppression chamber and reactor building so that the structural integrity of the containment is maintained.

Technical Specification 3.7.A.9.c is based on the assumption that the operability testing of the pressure suppression chamber-reactor building vacuum breaker, when required, will normally be performed during the same four hour testing interval as the pressure suppression chamber-drywell vacuum breakers in order to minimize the operation with <1.7 psi, differential pressure.

The vacuum relief system from the pressure suppression chamber to reactor building consists of two 100% vacuum relief breakers (2 parallel sets of 2 valves in series). Operation of either system will maintain the pressure differential less than 2 psig; the external design pressure is 2 psig.

The capacity of the ten (10) drywell vacuum relief valves is sized to limit the pressure differential between the suppression chamber and drywell during post-accident drywell cooling operations to the design limit of 2 psig. They are sized on the basis of the Bodega Bay pressure suppression tests. The ASME Boiler and Pressure Vessel Code, Section III, Subsection B, for this vessel allows eight (8) operable valves, therefore, with two (2) valves secured containment integrity is not impaired.

3.7... (cont'd)

Each drywell-suppression chamber vacuum breaker is fitted with a redundant pair of limit switches to provide fail safe signals to panel mounted indicators in the Reactor Building and alarms in the Control Room when the disks are open more than 0.050" at all points along the seal surface of the disk. These switches are capable of transmitting the disk closed to open signal with 0.01" movement of the switch plunger. Continued reactor operation with failed components is justified because of the redundance of components and circuits and, most importantly, the accessability of the valve lever arm and position reference external to the valve. The fail safe feature of the alarm circuits assures operator attention if a line fault occurs.

(1) Robbins, C. H., Tests on Full Scale 1/48 Segment of the Humboldt Bay Pressure Suppression Containment", GEAP-3596, November 17, 1960.

(2) Bodega Bay Preliminary Hazards Summary Report, Appendix 1, Docket 50-205, December 28, 1962.

(3) Code Allowable peak accident pressure is 62 psig.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 88 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 July 22, 1982 (Reference 1), Vermont Yankee Nuclear Power Corporation (the licensee/VYNPC) proposed a change to Section 3.7.A of the Technical Specifications for the Vermont Yankee Nuclear Power Station. The proposed change would raise the suppression pool temperature limit during normal operation from 90°F to 100°F. In that transmittal and in the subsequent one (Reference 2), the licensee provided its technical basis for the proposed change. Subsequent to these letters, the licensee provided its "Plant Unique Analysis Report" (PUAR, Reference 3) which contained a description of the specific application of the generic Mark I pool dynamic loads and methods to Vermont Yankee and the plant unique loads used in assessing the capability of the containment and associated components to accommodate pool dynamic loadings. This report supersedes the previous transmittals referenced above and consequently the PUAR serves as the staff's basis for its evaluation of the subject proposed change to the Technical Specifications.

2.0 EVALUATION

In the PUAR, the licensee analyzed safety relief valve (SRV) transients based on an initial suppression pool temperature of 100°F. The licensee has stated that the maximum bulk pool temperature will not exceed 175°F during any of the NRC-required transient analyses. The temperature remains below this level because Vermont Yankee has committed to remain in this suppression pool cooling mode for the entire length of the transient (i.e., not switch over to a reactor shutdown cooling mode requiring removal of the RHR system from suppression pool cooling). Based on data supplied by the licensee to characterize the Vermont Yankee RHR performance, we estimate that such operation will maintain a local-to-bulk pool temperature difference of 20°F. This implies that local pool temperature will stay below the limits imposed by the staff.

For Vermont Yankee, the maximum allowable local pool temperature is 200°F (Reference 2). Allowing a local-to-bulk pool temperature difference of 20°F results in an allowable bulk pool temperature of 180°F. As indicated above, the staff has agreed that the maximum bulk pool temperature obtained would not exceed 175°F.

3.0 SUMMARY

Based on the information provided by the licensee, we have concluded that the proposed changes to raise the suppression pool temperature limit during normal operation from 90°F to 100°F are acceptable.

4.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves changes 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 issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

5.0 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.

6.0 REFERENCES

1. Letter, July 22, 1982, L. H. Heider, Vermont Yankee Nuclear Power Corporation, to NRC, Subject: Proposed Change to Suppression Chamber Temperature Limit.

2. Letter, July 20, 1983, J. B. Sinclair, Vermont Yankee Nuclear Power Corporation, to D. B. Vassallo, NRC, Subject: Suppression Chamber Temperature Limit.

3. "Plant Unique Analysis Report of the Torus Suppression Chamber for Vermont Yankee Nuclear Power Station," Technical Report TR-5319-1, Teledyne Engineering Services, Rev. 1, April 8, 1983.

Principal Contributor: J. Lane

Dated: June 6, 1985