

July 9, 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. 89 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to the Technical Specifications in response to your application dated May 20, 1983, as revised February 7, 1984, and superseded October 22, 1984, and supplemented November 6, 1984.

The amendment revises the Technical Specifications pertaining to safety-related shock suppressors.

A copy of the Safety Evaluation is also enclosed.

Sincerely,
Original signed by/

Robert A. Hermann, Project Manager
Operating Reactors Branch #2
Division of Licensing

Enclosures:

- 1. Amendment No. 89 to License No. DPR-28
- 2. Safety Evaluation

cc w/enclosure:
See next page

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Mr. R. W. Capstick
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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. 89
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by Vermont Yankee Nuclear Power Corporation (the licensee) dated May 20, 1983, as revised February 7, 1984, and superseded October 22, 1984 and supplemented November 6, 1984 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the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:

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(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 89, 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: July 9, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 89

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Revise the Technical Specifications as follows:

<u>Remove</u>	<u>Insert</u>
110a	110a
110b	110b
110c	110c
	110d
	110e
	110f
116	116
116a	
116b	
116c	
125	125
125a	

The revised areas are indicated by marginal lines.

3.6 LIMITING CONDITIONS FOR OPERATION

4.6 SURVEILLANCE REQUIREMENTS

I. Shock Suppressors (Snubbers)

1. Except as noted in 3.6.I.2 and 3.6.I.3 below, all required safety-related snubbers shall be operable whenever its supported system is required to be operable.
2. With one or more required snubbers inoperable, within 72 hours, replace or restore the snubber to operable status and perform an engineering evaluation per Specification 4.6.I.1b and c, on the supported component. In all cases, the required snubbers shall be made operable or replaced prior to reactor startup.
3. If the requirements of 3.6.I.1 and 3.6.I.2 cannot be met, the supported system shall be declared inoperable and the appropriate action statement for that system shall be followed.

I. Shock Suppressors (Snubbers)

1. Each snubber shall be demonstrated operable by performance of the following inspection program.

a. Visual Inspections

Visual inspections shall be performed in accordance with the following schedule:

<u>No. Inoperable Snubbers per Inspection Period</u>	<u>Next Required Inspection Intervals</u>
0	18 months <u>+25%</u>
1	12 months <u>+25%</u>
2	6 months <u>+25%</u>
3, 4	124 days <u>+25%</u>
5, 6, 7	62 days <u>+25%</u>
8 or more	31 days <u>+25%</u>

The snubbers may be categorized into two groups: the accessible and those inaccessible during reactor operation. Each group may be inspected independently in accordance with the above schedule. The inspection interval shall not be lengthened more than one step at a time. Inaccessible snubbers are required to be inspected only if the period of time in which they become accessible is greater than 48 hours.

3.6 LIMITING CONDITIONS FOR OPERATION**4.6 SURVEILLANCE REQUIREMENTS****b. Visual Inspection Acceptance Criteria**

Visual inspections shall verify (1) that there are no visible indications of damage or impaired operability, and (2) that the snubber installation exhibits no visual indications of detachment from foundations or supporting structures. Snubbers which appear inoperable as a result of visual inspections may be determined operable for the purpose of establishing the next visual inspection interval, providing that (1) the cause of the rejection is clearly established and remedied for that particular snubber and for other snubbers that may be generically susceptible; and (2) the affected snubber is functionally tested in the as-found condition and determined operable per Specification 4.6.I.c, as applicable. When the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be determined inoperable unless it can be determined operable via functional testing for the purpose of establishing the next visual inspection interval. The functional test, in this case, shall be started with the piston in the as-found condition, extending the piston rod in the tension mode direction.

3.6 LIMITING CONDITIONS FOR OPERATION**4.6 SURVEILLANCE REQUIREMENTS****c. Functional Tests**

At least once per 18 months during shutdown, a representative sample of 10% of the snubbers in use in the plant shall be functionally tested either in place or in a bench test. For each snubber that does not meet the functional test acceptance criteria of Specification 4.6.I.1.d, an additional 10% of the snubbers shall be functionally tested until no more failures are found or until all snubbers have been functionally tested.

Snubbers of a rated capacity greater than the capability of the testing machine shall be functionally tested as follows: (1) the lock up and bleed velocity of the snubber valve shall be verified by testing it on a cylinder that is within the capability of the testing machine, (2) the free stroke of the cylinder shall be checked, and (3) the pressure retaining capability of the cylinder shall be checked.

3.6 LIMITING CONDITIONS FOR OPERATION

4.6 SURVEILLANCE REQUIREMENTS

Snubbers identified as especially difficult to remove or in high radiation areas shall also be included in the representative sample.

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next test period unless the root cause for the problem has been determined and corrective actions implemented. If a spare snubber has been installed in place of a failed snubber, then both the failed snubber (if it is repaired and installed in another position) and the spare snubber shall be retested during the next test period. Failure of these snubbers shall not entail functional testing of additional snubbers.

If any snubber selected for functional testing either fails to lock up or fails to move, i.e., frozen in place, the cause will be evaluated and if caused by manufacturer or design deficiency, all

3.6 LIMITING CONDITIONS FOR OPERATION**4.6 SURVEILLANCE REQUIREMENTS**

generically susceptible snubbers of the same design subject to the same defect shall be functionally tested. This testing requirement shall be independent of the requirements stated above for snubbers not meeting the functional test acceptance criteria.

For the snubber(s) found inoperable, a documented engineering evaluation shall be performed on the component(s) which are supported by the snubber(s). The scope of the evaluation shall be based on engineering judgement and may be limited to a visual inspection of the supported component(s). The purpose of this engineering evaluation shall be to determine if the component(s) supported by the snubber(s) were adversely affected by the inoperability of the snubber(s) in order to ensure that the supported component remains capable of meeting the designed service.

d. Hydraulic Snubbers Functional Test Acceptance Criteria

The hydraulic snubber functional test shall verify that:

3.6 LIMITING CONDITIONS FOR OPERATION

4.6 SURVEILLANCE REQUIREMENTS

J. Thermal Hydraulic Stability

1. When the reactor mode switch is in RUN, the reactor shall not intentionally be operated in a natural circulation mode, except as permitted in 3.6.J.2 below, nor shall an idle recirculation pump be started with the reactor in a natural circulation mode, except as permitted in 3.6.J.2.
2. For the purpose of performing special tests, operation in the natural circulation mode is permitted. For the purpose of recovering forced circulation operation during and after special tests at natural circulation, startup of an idle recirculation pump is permitted if:
 - a. The ΔT between the idle loop and vessel saturation temperature is $\leq 50^{\circ}\text{F}$.
 - b. The ΔT between the idle loop and an operating loop is $\leq 50^{\circ}\text{F}$.
 - c. The ΔT between the vessel top head and the vessel bottom head is $\leq 145^{\circ}\text{F}$.

1. Activation (restraining action) is achieved within the specified range of velocity or acceleration in both tension and compression.
2. Snubber bleed, or release rate, where required, is within the specified range in compression or tension. For snubbers specifically required to not displace under continuous load, the ability of the snubber to withstand load without displacement shall be verified.

J. Thermal Hydraulic Stability

Operation in the natural circulation mode shall be timed and recorded for special tests. Also, during special tests loop temperatures, vessel saturation temperature (pressure), vessel top head temperature, and vessel bottom head temperature shall be monitored and recorded.

PAGES 116, 116a, 116b, and 116c HAVE BEEN DELETED.

3.6.I and 4.6.I SHOCK SUPPRESSORS (SNUBBERS)

All snubbers are required operable to ensure that the structural integrity of the Reactor Coolant System and all other safety-related systems is maintained during and following a seismic or other event initiating dynamic loads.

The visual inspection frequency is based upon maintaining a constant level of snubber protection to systems. Therefore, the required inspection interval varies inversely with the observed snubber failures and is determined by the number of inoperable snubbers found during an inspection. Inspections performed before that interval has elapsed may be used as a new reference point to determine the next inspection. However, the results of such early inspections performed before the original required time interval has elapsed (nominal time less 25%) may not be used to lengthen the required inspection interval. Any inspection whose results require a shorter inspection interval will override the previous schedule.

When the cause of the rejection of a snubber is clearly established and remedied for that snubber and for any other snubbers that may be generically susceptible, and verified by functional testing, that snubber may be exempted from being counted as inoperable. Generically susceptible snubbers are those which are (1) of a specific make or model, (2) of the same design, and (3) similarly located or exposed to the same environmental conditions such as temperature, radiation, and vibration. These characteristics of the snubber installation shall be evaluated to determine if further functional testing of similar snubber installations is warranted.

When a snubber is found inoperable, an engineering evaluation is performed, in addition to the determination of the snubber mode of failure, in order to determine if any safety-related component or system has been adversely affected by the inoperability of the snubber. The engineering evaluation shall determine whether or not the snubber mode of failure has imparted a significant effect or degradation on the supported component or system.

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested once each operating cycle. Observed failures of these sample snubbers shall require functional testing of additional units.

3.6.J THERMAL HYDRAULIC STABILITY

Not allowing operation in a natural circulation mode will provide additional stability margin, and it will provide protection against a reactivity insertion transient due to starting of an idle recirculation pump from the natural circulation mode.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NO. DPR-28
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
DOCKET NO. 50-271

1. INTRODUCTION

Operating experiences, advances in the state-of-the-art, voids in some specific requirements, and nonuniform interpretations indicated the need for changes, clarifications, and improvements in the Standard Technical Specifications (STS) for inservice operability and surveillance requirements for snubbers. To reflect accumulated experience obtained in the past several years, the NRC staff issued Revision 1 of the snubber STS. By NRC Generic Letters dated November 20, 1980 to power reactor licensees (except SEP licensees) and March 23, 1981 to SEP licensees, the NRC requested all licensees to incorporate the requirements of this revision into their plant specific Technical Specifications (TS).

The revised STS included:

- Addition of mechanical snubbers to the surveillance program;
- Deletion of the blanket exemption for testing of greater than 50,000 lb. rated capacity snubbers. (Snubbers of greater than 50,000 lb. capacity are now included in the testing program);
- Deletion of the requirement that seal material receive NRC approval;
- Clarification of test requirements;
- Provision for in-place testing; and
- Addition of a service life monitoring program.

Recently, by NRC Generic Letter dated May 3, 1984, the NRC advised that licensees may choose to request a license amendment to delete the tabular listing of snubbers from their TS.

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2. DISCUSSION

Vermont Yankee Nuclear Power Corporation (licensee) responded to the November 20, 1980 NRC request by letter dated April 7, 1981 in which the licensee presented reasons why their snubber TS were appropriate and sufficient. The NRC Region I staff performed a plant site inspection dated May 26, 1983 and discussions were held with cognizant licensee's personnel concerning the bases of the snubber STS and differences in the licensee's snubber TS. By letter dated February 7, 1984 the licensee submitted a request for license amendment and proposed snubber TS changes which addressed the majority of differences discussed during the site inspection.

Based on the staff's review of the licensee's submittal of February 7, 1984, another site inspection, dated March 29, 1984, was performed by NRC Region I. During this inspection a meeting was held with cognizant licensee's personnel and the licensee's TS were compared term by term with the NRC model STS. At this meeting, the licensee's staff provided clarification which justified many of their proposed TS differences. The NRC staff determined that several of the differences would require further TS change or written justification to resolve the differences. These differences were the subject of the NRC May 3, 1984, Request for Additional Information (RAI) sent to the licensee.

The licensee responded to the RAI, by letter dated July 9, 1984, and provided information regarding each of the NRC requested items. The licensee resolved the majority of the items by committing to revise the TS to agree with the STS or by providing an acceptable justification for the difference. Three of the response items required additional clarification or a commitment from the licensee. A conference phone conversation between NRC and licensee staffs was made on August 8, 1984 and agreements were reached on resolving these few remaining items. The licensee's staff advised that the forthcoming snubber TS submittal would be revised to reflect the agreed-upon positions.

The licensee's July 9, 1984 response to the RAI, also indicated the licensee's intent to delete their snubber TS Tables based on the NRC Generic Letter dated May 3, 1984. Therefore, licensee's letters dated May 17, 1983, May 20, 1983 and August 3, 1983 which related to snubber TS Table additions and deletions due to system modifications have not been included within this discussion.

3. EVALUATION

By letters dated October 22, 1984 and November 6, 1984, the licensee resubmitted their revised proposed snubber TS changes, completely replacing the February 7, 1984 submittal. The staff has evaluated this snubber TS resubmittal and has determined it to be in substantial agreement with the intent of the snubber STS and TS recently approved for Near Term Operating Licenses.

The licensee's proposed snubber TS has: 1) clarified and increased snubber operability and surveillance requirements, 2) defined testing and acceptance criteria, 3) removed the exemption for testing snubbers of greater than 50,000 lb. capacity, and 4) included the method to functionally test snubbers of rated capacity greater than the capability of their testing machine.

The licensee's resubmittals included the TS agreed-upon positions of the NRC and licensee staffs phone conversation of August 8, 1984 and the RAI response commitments and do not require additional comment. In performing this evaluation the staff recognized the licensee's proposed TS are in the custom (in lieu of STS) format and also that there would be certain items where a plant specific approach is warranted. For example, the proposed TS does not contain mechanical snubber provisions, because only hydraulic snubbers are used with safety related systems at the facility. Other variations between the STS and the licensee's TS and several items which are regarded noteworthy of explanation are addressed below.

3.1 Functional Testing of Large Snubbers

The licensee's TS 4.6.I.1.c has been modified to remove the exemption for testing snubbers of greater than 50,000 lb. capacity. Removal of this exemption was one of the prime objectives of the STS.

The licensee's TS 4.6.I.1.c contains requirements for functional testing of snubbers of rated capacity greater than the capability of the testing machine based on the snubber vendor's correlative type procedure. This involves testing of the large snubber components individually and in combination with a smaller snubber and calculating equivalent velocities and forces to enable appropriate large snubber valve settings.

The licensee's TS 4.6.I.1.c requires: 1) testing and/or setting of the snubber valve assembly for proper lock-up and bleed velocity utilizing a cylinder that is within the testing machine capability, 2) checking for free stroke of the snubber cylinder, and 3) checking the pressure retaining capability of the snubber cylinder.

The staff has reviewed the licensee's large snubber functional test requirements, the snubber vendor's procedure to perform this testing, and recently approved TS which permit indirect testing. The staff has also determined that the licensee has only one snubber that exceeds their test machine capability. The staff has concluded that the licensee's large snubber functional testing meets the STS intent, and therefore is acceptable.

3.2 Service Life Monitoring

The licensee's TS does not contain the STS service monitoring provision, however, the licensee's RAI response dated July 9, 1984 submitted information stating that their Plant Operating Procedures TS requires them to have detailed procedures in areas including surveillance testing, and preventive maintenance. The licensee also described their restrictive maintenance practice of rebuilding and replacing seals on each snubber that is functionally tested and they noted that no functional test failures have been experienced since 1978. Additionally, the licensee's earlier response dated April 7, 1981, stated that their present snubber surveillance program required retention of maintenance records and that their maintenance program requires periodic review of these records to determine failure trends to establish criteria to determine service life.

Based on the results oriented nil failure record, the staff's site verification that each snubber functionally tested is rebuilt, the relatively small number of snubbers (57 total), the licensee's orderly maintenance records which contain service life information, the licensee's method of setting snubbers based on fluid viscosity at temperature, and the licensee's effective maintenance and surveillance program as evidenced by no functional test failures since 1978, the staff finds the licensee's position acceptable.

3.3 Functional Testing Frequency

The licensee has modified their TS Bases to describe the functional testing during each "operating cycle" instead of refueling cycle.

The staff reviewed the licensee's TS and determined that the "operating cycle" is defined in the TS whereas "refueling cycle" is undefined. In addition, use of the term "operating cycle" is consistent with other TS equipment surveillance requirements. Based on the above the staff finds the term acceptable.

3.4 TS Snubber Tables

The licensee's proposed snubber TS does not contain a Table listing of snubbers. The licensee's removal of the Table was based on the recent NRC Generic Letter dated May 3, 1984 which provided the choice.

The staff's plant site inspection dated March 29, 1984 verified that the licensee maintains a comprehensive listing of snubbers and records which document the results and dates of testing, inspections, repair, and installation of snubbers.

Based on the verification of the licensee's records, the licensee's proposed TS which have now been modified to define which snubbers are required to be operable and the NRC Generic Letter of May 3, 1984, the staff finds the licensee's proposed TS Table deletion to be acceptable.

Based on the review as described herein, the staff finds the licensee's proposed snubber TS submittal to be acceptable.

4. 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 and changes in surveillance requirements. 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. 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.

Principal Contributor: Harold I. Gregg

Dated: July 9, 1985