

# VERMONT YANKEE NUCLEAR POWER CORPORATION

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April 17, 2001  
BVY 01-33

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

**Subject: Vermont Yankee Nuclear Power Station  
License No. DPR-28 (Docket No. 50-271)  
Technical Specification Proposed Change No. 245  
Post-Accident Monitoring Instrumentation**

Pursuant to 10CFR50.90, Vermont Yankee (VY) hereby proposes to amend its Facility Operating License, DPR-28, by incorporating the attached proposed change into the VY Technical Specifications (TS). This proposed change revises the description of certain secondary post-accident monitoring instrumentation contained in TS Table 3.2.6. The subject descriptions contain unnecessary details—to the extent that a license amendment may be required prior to replacing these instruments. The current level of TS details is not needed to assure that the required information provided by these instruments is available to control room operators in order for them to accomplish specified safety functions during design basis accident events.

Attachment 1 to this letter contains supporting information and the safety assessment of the proposed change. Attachment 2 contains the determination of no significant hazards consideration. Attachment 3 provides the marked-up version of the current Technical Specification page. Attachment 4 is the retyped Technical Specification page.

VY has reviewed the proposed Technical Specification change in accordance with 10CFR50.92 and concludes that the proposed change does not involve a significant hazards consideration.

VY has also determined that the proposed change satisfies the criteria for a categorical exclusion in accordance with 10CFR51.22(c)(9) and does not require an environmental review. Therefore, pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment needs to be prepared for this change.

Upon acceptance of this proposed change by the NRC, VY requests that a license amendment be issued no later than six months from the date of this letter for implementation within 60 days of its effective date. Issuance of an amendment by this date will enable implementation of a planned plant modification to upgrade existing control room recorders.

A001

If you have any questions on this transmittal, please contact Mr. Jeffrey T. Meyer at (802) 258-4105.

Sincerely,

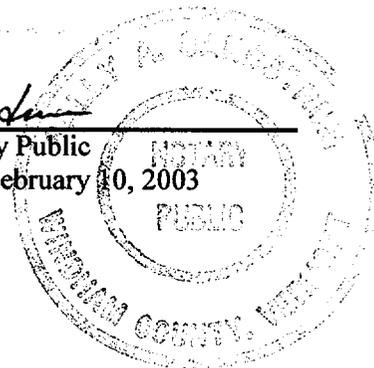
VERMONT YANKEE NUCLEAR POWER CORPORATION

Michael A. Balduzzi  
Michael A. Balduzzi  
Vice President, Operations

STATE OF VERMONT        )  
                                  )ss  
WINDHAM COUNTY        )

Then personally appeared before me, Michael A. Balduzzi, who, being duly sworn, did state that he is Vice President, Operations of Vermont Yankee Nuclear Power Corporation, that he is duly authorized to execute and file the foregoing document in the name and on the behalf of Vermont Yankee Nuclear Power Corporation, and that the statements therein are true to the best of his knowledge and belief.

Sally A. Sandstrum  
Sally A. Sandstrum, Notary Public  
My Commission Expires February 10, 2003



Attachments

- cc: USNRC Region 1 Administrator
- USNRC Resident Inspector - VYNPS
- USNRC Project Manager - VYNPS
- Vermont Department of Public Service

Docket No. 50-271  
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Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 245

Post-Accident Monitoring Instrumentation

Supporting Information and Safety Assessment of Proposed Change

## INTRODUCTION

### Purpose

This proposed change revises the description of certain secondary post-accident monitoring instrumentation contained in Technical Specifications (TS) Table 3.2.6. The TS descriptions of these components contain unnecessary details—to the extent that a license amendment may be required prior to replacing these instruments. The current level of detail is not needed to assure that the required information provided by these instruments is available to support control room operators in accomplishing specified safety functions during design basis accident events. Implementation of this proposed change will enable a planned plant modification to upgrade existing control room recorders.

### Current Technical Specifications

Current TS Limiting Condition for Operation 3.2.G requires that instrumentation that displays information in the control room necessary for the plant operator to initiate and control the systems used during and following an accident shall be operable during reactor power operation in accordance with Table 3.2.6. TS Table 3.2.6 includes instrumentation for monitoring (1) safety/relief valve (S/RV) position from pressure switches and (2) safety valve (SV) position from an acoustic monitor. Associated Notes 4 and 5 of Table 3.2.6 specify requirements for instrumentation that provide a secondary or backup means for determining S/RV or SV position, should the primary post-accident monitoring (PAM) instrumentation be unavailable. By monitoring secondary parameters, the control room operator should be able to ascertain the same conditions (in this case, valve position) monitored by the primary instrumentation.

### Description of Proposed Change

This Proposed Change revises Notes 4 and 5 contained in TS Table 3.2.6, regarding operational requirements for certain secondary PAM instrumentation as follows.

The first sentence of Table 3.2.6, Note 4 is changed from:

*From and after the date that safety/relief valve position from pressure switches is unavailable, reactor operation may continue provided safety/relief valve position can be determined from Recorder #2-166 (steam temperature in SRVs, 0-600°F) and Meter 16-19-33A or C (torus water temperature, 0-250°F).*

To:

*From and after the date that safety/relief valve position from pressure switches is unavailable, reactor operation may continue provided safety/relief valve position can be determined by monitoring safety/relief valve discharge temperature and torus water temperature.*

The first sentence of Table 3.2.6, Note 5 is changed from:

*From and after the date that safety valve position from the acoustic monitor is unavailable, reactor operation may continue provided safety valve position can be determined from Recorder #2-166 (thermocouple, 0-600°F) and Meter 16-19-12A or B (containment pressure (-15) – (+260) psig).*

To:

*From and after the date that safety valve position from the acoustic monitor is unavailable, reactor operation may continue provided safety valve position can be determined by monitoring safety valve discharge temperature and primary containment pressure.*

These changes do not alter the actual availability requirements for secondary (or backup) indicators of valve position, but rather remove unnecessary detail from the TS regarding specific instrumentation.

### Need for Change

The currently specified details in TS Table 3.2.6 regarding PAM instrumentation restrict the ability to make needed upgrades to existing plant instrumentation. Due to the age of this instrumentation, the in-kind replacement of certain recorders is very difficult due to obsolescence. In addition, instrumentation replacements of a different kind may be advantageous to future operations and maintenance. As a result, VY plans to replace certain obsolete equipment as necessary in order to maintain reliability, availability and maintainability. While future equipment changes will conform to applicable licensing and design bases, component identification numbers typically change with new designs. Therefore, such TS details are overly restrictive and inhibit making qualified replacements.

## **BACKGROUND**

### History

Requirements for position indicating systems for S/RVs and SVs are based on the need to provide the plant operator with a diagnostic aid to reduce the ambiguity between indications that might indicate either an open S/RV, SV or a small line break. Following the accident at TMI-2, VY was backfitted with position-indicating systems for this purpose. VY License Amendment No. 63, issued March 2, 1981, originally added requirements to TS Table 3.2.6 for monitoring S/RV and SV position as part of several changes related to TMI-2 Lessons Learned Category "A" requirements. These provisions were proposed in direct response to the NRC staff's letter to "All Boiling Water Reactor Licensees," dated July 2, 1980, which provided model TS. The model TS suggested establishing requirements for primary and backup detectors associated with the valve position indication functions for S/RVs and SVs.

### VY Design Features

To provide the control room operator with a direct means for monitoring S/RV and SV position, VY installed tailpipe pressure switches to monitor the position of each S/RV, and acoustic accelerometers to monitor the position of each SV. These are the primary indicating systems noted in TS Table 3.2.6. Although this primary instrumentation is highly reliable, Notes 4 and 5 to Table 3.2.6 provide an alternate means for determining valve position, should the primary instrumentation be unavailable.

The secondary indicating systems consist of downstream temperature detectors (i.e., thermocouples ) for both S/RVs and SVs, and one other means for confirming valve position. For S/RVs the other TS-specified secondary indicator is torus water temperature, and for SVs it is containment pressure.

The thermocouples located on the S/RV and SV discharge detect valve leakage with readout and high temperature alarm in the control room. The discharge of VY's S/RVs is piped to the suppression pool, terminating below the pool water level to permit the steam to condense in the pool when a valve actuates.

VY's SVs discharge directly into the drywell atmosphere. Therefore, following the opening of an S/RV or SV, the plant operator is able to monitor the resultant effects on suppression pool temperature or drywell pressure, respectively.

As instrumentation for monitoring drywell pressure and torus water temperature, these "other" secondary indicators actually satisfy the requirements for monitoring Regulatory Guide 1.97 Type A variables (i.e., drywell pressure and torus water temperature). This dual classification of PAM instrumentation is consistent with Regulatory Guide 1.97 since a given instrument may be used to monitor more than one category of variables. For the purpose of monitoring S/RV and SV position, these other secondary instrumentation are not considered to be Regulatory Guide 1.97 Type A instruments.

Use of these diverse indicating systems is included in plant procedures, thus supporting the control room operator in making the proper diagnosis of off-normal conditions and enhancing response capability.

#### Regulatory Guide 1.97

The operability of PAM instrumentation ensures that there is sufficient information available on selected plant parameters to monitor and assess plant status and behavior following an accident. The PAM instrumentation that provides primary information is necessary to support the plant operator in taking those manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions during design basis accident events. The instrumentation that monitor these key variables are designated as either Type A or Category 1 in accordance with Regulatory Guide 1.97<sup>1</sup>.

VY's Regulatory Guide 1.97 program meets the intent of Regulatory Guide 1.97, Revision 3, as defined in VY letter<sup>2</sup> to NRC dated March 29, 1996, and previously found acceptable by NRC staff in a safety evaluation<sup>3</sup>. Neither S/RV position indication, nor SV position indication, is designated as Regulatory Guide 1.97 Type A or Category 1 PAM instrumentation under VY's Regulatory Guide 1.97 program.

PAM instrumentation that satisfy the definition of Type A in Regulatory Guide 1.97 meet Criterion 3 of 10CFR50.36. Other Category 1 instrumentation are intended to assist operators in minimizing the consequences of accidents. Because only Type A variables meet the criteria of 10CFR50.36, and only Category 1 instruments, by definition monitor key variables, requirements for S/RV and SV position indication may be excluded from TS since they are not considered to be primary instrumentation for the accomplishment of plant safety functions. Pending a comprehensive review of PAM instrumentation in TS, VY may at a future date request relocation of certain TS requirements regarding PAM instrumentation to a licensee-controlled document.

The NRC position on PAM instrumentation to be included in TS has been that the TS PAM instrumentation should include, on a plant-specific basis, all Regulatory Guide 1.97 Type A instruments specified in the plant's Safety Evaluation Report on Regulatory Guide 1.97, and all Regulatory Guide 1.97 Category 1 instruments. Those PAM instruments not meeting this criterion need not be contained in TS. This conclusion is justified because the variables monitored by instrumentation that is neither Type

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<sup>1</sup> U.S. Nuclear Regulatory Commission Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," Revision 3, May 1983

<sup>2</sup> Letter, VYNPC to USNRC, "NUREG-0737, Supplement No. 1 - Regulatory Guide 1.97 Program Update," BVY 96-33, dated March 29, 1996

<sup>3</sup> Letter, USNRC to VYNPC, "Conformance to Regulatory Guide 1.97 for Vermont Yankee Nuclear Power Station (TAC No. 51365)," dated December 4, 1990

A, nor Category 1, are less risk-significant in that required operator manual actions do not rely on these instruments. VY's Regulatory Guide 1.97 program and NRC's related safety evaluation do not include either S/RV position or SV position as being either Type A or Category 1 instrumentation. It can therefore be concluded that loss of this instrumentation would not be considered risk significant since the variables they monitor are not Type A variables, and the instrumentation is not required to be qualified to Category 1 requirements. That is, this instrumentation is not needed by the operator to support necessary manual actions.

#### Comparison to Standard Technical Specifications

Standard Technical Specifications<sup>4</sup> (STS) contain requirements for PAM Instrumentation in Section 3.3.3.1. The scope of PAM instrumentation to be included in STS is limited to instrumentation that satisfy the definition of either Type A or Category 1 instrumentation in accordance with Regulatory Guide 1.97. The VY S/RV position indication from pressure switches and SV position indication from acoustic monitor are neither Type A, nor Category 1 PAM instrumentation. Instrumentation identification numbers and design details (such as instrument range) are not included for PAM instrumentation in STS.

#### Updated Final Safety Analysis Report (UFSAR)

The following VY UFSAR sections provide additional background information:

- 4.4.5 – a description of the nuclear system pressure relief system
- 4.10.3 – a description of the S/RV and SV leakage detection systems
- 7.4.3.3.4 – a description of the S/RV position indication instrumentation
- Table 7.4.2 – details of S/RV instrumentation
- 7.8.5.8 – a description of the SV leakage detection system
- Table 7.8.1 – details of SV instrumentation
- 14.5.4.2 – analysis of inadvertent opening of a S/RV or SV

### **SAFETY ASSESSMENT**

The proposed revision to current TS does not change the variables that are required to be monitored, but rather specifies the parameters to be monitored, instead of identifying details of the instrumentation used for this purpose. Each of the specified parameters is monitored for a specific purpose; however, the general purpose of all accident monitoring instrumentation is to provide sufficient information to confirm that accident response is proceeding as postulated (i.e., automatic safety systems are performing properly, and deviations from the expected accident course is minimal).

The proposed change deletes instrument identification numbers and instrument ranges for certain PAM instrumentation contained within TS Table 3.2.6. This change does not materially change the meaning or application of any TS functional requirement or the required availability of instrumentation. In addition, this proposed change does not modify the design bases of any Regulatory Guide 1.97 instrumentation.

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<sup>4</sup> NUREG-1433, Revision 1, "Standard Technical Specifications, General Electric Plants, BWR/4," dated April 1995

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The deleted details are not necessary to ensure that PAM instrumentation is maintained operable, or that replacement instrumentation is properly qualified. The requirements of TS Limiting Conditions for Operation and associated Surveillance Requirements are adequate to ensure the required instrumentation is maintained operable.

It is not necessary to specify PAM instrumentation identification numbers and design details (such as instrument ranges) in TS to ensure that qualified instrumentation is available to monitor plant parameters. Other VY licensing and design bases documents, including commitments regarding Regulatory Guide 1.97, maintain sufficient details on the identification and design aspects of PAM instrumentation. NRC has reviewed and accepted these details in various licensing bases documents. As such, these details are not required to be in the TS to provide adequate protection of public health and safety. Changes to licensing and design bases are controlled under VY's established processes (e.g., 10CFR50.59) for managing regulatory commitments.

While the PAM instrumentation provides information to the control room operator that is used to mitigate an accident, this change does not affect the ability of the PAM instrumentation to perform this function. Under the proposed change, operability of the PAM instrumentation is not affected.

#### Conclusion

In conclusion, based on the considerations discussed above: (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 NRC regulations; and (3) approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

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**Attachment 2**

**Vermont Yankee Nuclear Power Station**

**Proposed Technical Specification Change No. 245**

**Post-Accident Monitoring Instrumentation**

**Determination of No Significant Hazards Consideration**

**DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION**Description of amendment request:

The proposed amendment would delete component identification numbers and instrument range details for certain post-accident monitoring instrumentation contained within Technical Specifications Table 3.2.6 and used as a secondary indication of safety/relief valve and safety valve position. This revision does not materially change the meaning or application of any Technical Specification functional requirement.

Basis for No Significant Hazards Determination:

Pursuant to 10CFR50.92, VY has reviewed the proposed change and concludes that the change does not involve a significant hazards consideration since the proposed change satisfies the criteria in 10CFR50.92(c). These criteria require that the operation of the facility in accordance with the proposed amendment will not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (2) create the possibility of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety. The discussion below addresses each of these criteria and demonstrates that the proposed amendment does not constitute a significant hazard.

1. Will the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

The post accident monitoring (PAM) instrumentation is not considered as an initiator or contributor to any previously evaluated accident. The proposed change will not impact the ability of the PAM instrumentation to perform its intended function, nor does it impact any Final Safety Analysis Report safety analysis. Therefore, the proposed change will not increase the probability of any accident previously evaluated.

Additionally, while the PAM instrumentation provides information to the control room operator that may be used to mitigate an accident, this change does not affect the ability of the PAM instrumentation to perform this function. This change does not modify any parameters of previously analyzed events. Therefore, the proposed change will not increase the consequences of any accident previously evaluated.

2. Will the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed change does not involve any physical modification to the plant, change in Technical Specification setpoints, plant operation, or design basis of the plant. The PAM instrumentation provides information to the plant operator to assist in the mitigation of an accident, and the means for accomplishment of this function are unchanged. Under the proposed change, operability of the PAM instrumentation is not impacted. Therefore, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will the proposed changes involve a significant reduction in a margin of safety?

The proposed change would delete instrument identification numbers and instrument ranges from Technical Specifications for certain PAM instrumentation. These details are not necessary to ensure the PAM instrumentation is maintained operable. The requirements of Technical Specification Limiting Condition for Operation and associated Surveillance Requirements are adequate to ensure the required instrumentation is maintained operable. The proposed change will not impact the ability of the PAM instrumentation to perform its intended function. Therefore, this change does not involve a significant reduction in a margin of safety.

Conclusion

On the basis of the above, VY has determined that operation of the facility in accordance with the proposed change does not involve a significant hazards consideration as defined in 10CFR50.92(c), in that it: (1) does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) does not involve a significant reduction in a margin of safety.

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**Attachment 3**

**Vermont Yankee Nuclear Power Station**

**Proposed Technical Specification Change No. 245**

**Post-Accident Monitoring Instrumentation**

**Marked-up Version of the Current Technical Specifications**

VYNPS

TABLE 3.2.6 NOTES

Note 1 - From and after the date that a parameter is reduced to one indication, operation is permissible for 30 days. If a parameter is not indicated in the Control Room, continued operation is permissible during the next seven days. If indication cannot be restored within the next six hours, an orderly shutdown shall be initiated and the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 2 - Deleted.

Note 3 - From and after the date that this parameter indication in the Control Room, continued operation is permissible during the next 30 days. If both parameters and indication cannot be restored in six hours, an orderly shutdown shall be initiated and the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

by monitoring safety/relief valve discharge temperature and torus water temperature

Note 4 - From and after the date that safety/relief valve position from pressure switches is unavailable, reactor operation may continue provided safety/relief valve position can be determined from Recorder #2-166 (~~steam temperature in SRVs, 0-600°F~~) and Meter 16-19-33A or C (~~torus water temperature, 0-250°F~~). If both parameters are not available, the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 5 - From and after the date that safety valve position from the acoustic monitor is unavailable, reactor operation may continue provided safety valve position can be determined from Recorder #2-166 (~~thermocouple, 0-600°F~~) and Meter #16-19-12A or B (~~containment pressure (-15) to (-260) psig~~). If both indications are not available, the reactor shall be in a hot shutdown condition in six hours and in a cold shutdown condition in the following 18 hours.

Note 6 - Within 30 days following the loss of one indication, or seven days following the loss of both indications, restore the inoperable channel(s) to an operable status or a special report. A special report must be prepared and submitted within the specified time. Following the action taken, the cause of the inoperability and the schedule for restoring the system to operable status must be included in the report.

by monitoring safety valve discharge temperature and primary containment pressure

Note 7 - From and after the date that this parameter indication in the Control Room, within 72 hours ensure that local indication is available. If the Control Room indication is not restored within 7 days, prepare and submit a special report to the NRC within 14 days following the event, outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status.

Note 8 - When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions for Operation and required action notes may be delayed for up to 6 hours.

**Attachment 4**

**Vermont Yankee Nuclear Power Station**

**Proposed Technical Specification Change No. 245**

**Post-Accident Monitoring Instrumentation**

**Retyped Technical Specification Pages**

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Listing of Affected Technical Specifications Pages

Replace the Vermont Yankee Nuclear Power Station Technical Specifications page listed below with the revised page included herewith. The revised page contains vertical lines in the margin indicating the areas of change.

<u>Remove</u>	<u>Insert</u>
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VYNPS

TABLE 3.2.6 NOTES

Note 1 - From and after the date that a parameter is reduced to one indication, operation is permissible for 30 days. If a parameter is not indicated in the Control Room, continued operation is permissible during the next seven days. If indication cannot be restored within the next six hours, an orderly shutdown shall be initiated and the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 2 - Deleted.

Note 3 - From and after the date that this parameter is reduced to one indication in the Control Room, continued reactor operation is permissible during the next 30 days. If both channels are inoperable and indication cannot be restored in six hours, an orderly shutdown shall be initiated and the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 4 - From and after the date that safety/relief valve position from pressure switches is unavailable, reactor operation may continue provided safety/relief valve position can be determined by monitoring safety/relief valve discharge temperature and torus water temperature. If both parameters are not available, the reactor shall be in a hot shutdown condition in six hours and a cold shutdown condition in the following 18 hours.

Note 5 - From and after the date that safety valve position from the acoustic monitor is unavailable, reactor operation may continue provided safety valve position can be determined by monitoring safety valve discharge temperature and primary containment pressure. If both indications are not available, the reactor shall be in a hot shutdown condition in six hours and in a cold shutdown condition in the following 18 hours.

Note 6 - Within 30 days following the loss of one indication, or seven days following the loss of both indications, restore the inoperable channel(s) to an operable status or a special report to the Commission must be prepared and submitted within the subsequent 14 days, outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status.

Note 7 - From and after the date that this parameter is unavailable by Control Room indication, within 72 hours ensure that local sampling capability is available. If the Control Room indication is not restored within 7 days, prepare and submit a special report to the NRC within 14 days following the event, outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status.

Note 8 - When a channel is placed in an inoperable status solely for performance of required surveillances, entry into associated Limiting Conditions for Operation and required action notes may be delayed for up to 6 hours.