# VERMONT YANKEE
# NUCLEAR POWER CORPORATION

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September 14, 2000
BVY 00-84

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. 237**
**Primary Containment Isolation System Initiation Signal Clarification**

Pursuant to 10CFR50.90, Vermont Yankee (VY) hereby proposes to amend its Facility Operating License, DPR-28, by incorporating the attached proposed changes into the VY Technical Specifications. These proposed changes add clarification to valve isolation signal information in Table 4.7.2 and make an administrative change to the Table main steam isolation valves component identification.

Technical Specification Table 4.7.2 lists containment isolation valves and the Primary Containment Isolation System (PCIS) groups to which the valves are assigned. Note 1 to Table 4.7.2 defines the isolation signals that are associated with the designated groups. The isolation signal description for Group 2 states that the valves are closed upon either low reactor water level or high drywell pressure. RHR containment cooling valves V10-39A/B, V10-34A/B, V10-26A/B, V10-31A/B and V10-38A/B are designated as Group 2 in Table 4.7.2 and isolate upon either 1) low-low reactor water level and low reactor pressure, or 2) high drywell pressure. Table 4.7.2 and associated Note 1 are being revised to clarify Group 2 isolation signals. Additionally, main steam isolation valve component identifications are revised by this proposed change to more clearly reflect all four inboard and outboard valves.

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 and Bases pages showing the changes requested. Attachment 4 is the re-typed Technical Specification and Bases pages.

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 also believes 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.

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Upon acceptance of this proposed change by the NRC, VY requests that a license amendment be issued by November 30, 2000 for implementation within 30 days of its effective date.

If you have any questions concerning this transmittal, please contact Mr. Brian Hobbs at (802) 258-4116.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Robert J. Wanczyk
Director, Safety and Regulatory Affairs

STATE OF VERMONT )
)ss
WINDHAM COUNTY )

Then personally appeared before me, Robert J. Wanczyk, who, being duly sworn, did state that he is Director, Safety and Regulatory Affairs 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, Notary Public
My Commission Expires February 10, 2003

SALLY A. SANDSTRUM
NOTARY PUBLIC
WINDHAM COUNTY, VERMONT

Attachments

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

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 237

Primary Containment Isolation System Initiation Signal Clarification

Supporting Information and Safety Assessment of Proposed Change

## DESCRIPTION OF CHANGE

VY proposes to change the Technical Specifications to clarify isolation signal information contained in Note 1 to Table 4.7.2, Primary Containment Isolation Valves. Table 4.7.2 lists primary containment isolation valves by isolation groups. The valves identified as Group 2 include:

RHR Discharge to Radwaste (10-57, 10-66)
Drywell Floor Drain (20-82, 20-83)
Drywell Equipment Drain (20-94, 20-95)
RHR Return to Suppression Pool (10-39A, B)
RHR Return to Suppression Pool (10-34A, B)
RHR Drywell Spray (10-26A, B & 10-31A, B)
RHR Suppression Chamber Spray (10-38A, B)

Note 1 to Table 4.7.2 lists isolation signals by isolation groups. For Group 2, Note 1 states:

"The valves in Group 2 are closed upon any one of the following conditions:

1. Low reactor water level
2. High drywell pressure"

Table 4.7.2 lists the component identification for main steam isolation valves on page 159 as:

"(2-80A, D & 2-86A, D)"

The component identification should reflect all four (A, B, C and D) inboard and outboard valves in each main steam line.

The proposed changes are as follows:

VY proposes to add an asterisk footnote to Table 4.7.2 Note 1, Group 2, on page 162. A footnote will be added to the bottom of page 162 as follows:

"* Valves V10-39A/B, V10-34A/B, V10-26A/B, V10-31A/B and V10-38A/B are closed upon either 1) low-low reactor water level and low reactor pressure or 2) high drywell pressure."

VY proposes to revise the component identification for the main steam isolation valves as follows:

"(2-80A-D & 2-86A-D)"

## REASON FOR CHANGE

These changes are necessary to clarify Technical Specification primary containment isolation valve signals and main steam isolation valve component identification. Incorporation of these

changes will: 1) differentiate between the Group 2 primary containment isolation valve actuation signals, 2) reference the specific isolation signals applicable to the ten RHR containment cooling isolation valves, 3) preclude potential conflicts regarding interpretation of Group 2 isolation valve automatic closure signals, and 4) provide a complete listing of component identification for all four inboard and four outboard main steam isolation valves.

FSAR Table 7.3.1 lists the primary containment and reactor vessel isolation valves, designated Group 2 in Technical Specifications Table 4.7.2, that close on low reactor vessel water level or high drywell pressure signals as; RHR Discharge to Radwaste (10-57, 10-66); Drywell Floor Drain (20-82, 20-83); and Drywell Equipment Drain (20-94, 20-95). The isolation signal codes associated with these valves are specified in the list attached to FSAR Table 7.3.1 as; signal A - reactor vessel low reactor water level; signal F - high drywell pressure; and signal RM - remote manual closure (signal RM).

FSAR Table 7.3.1 lists the primary containment and reactor vessel isolation valves, designated Group 2 in Technical Specifications Table 4.7.2, that close on reactor vessel low-low level (with concurrent low reactor pressure for RHR and core spray only) or high drywell pressure signals as; RHR Return to Suppression Pool (10-39A, B), RHR Return to Suppression Pool (10-34A, B), RHR Drywell Spray (10-26A, B and 10-31A,B), and RHR Suppression Chamber Spray (10-38A, B). The isolation signal codes associated with these valves are specified in the list attached to FSAR Table 7.3.1 as; signal G - high drywell pressure or reactor vessel low-low reactor water level (with coincident low reactor pressure for RHR and core spray only); and signal RM - remote manual closure (signal RM).

The Vermont Yankee main steam isolation valves are currently identified as 2-80A, B and 2-86A, B, in Technical Specification Table 4.2.7. The Vermont Yankee main steam isolation valves are identified in current plant configuration documents as 2-80A, B, C and D and 2-86A, B, C and D. Technical Specifications Table 4.7.2 should more clearly identify all four inboard and outboard main steam isolation valves as primary containment isolation valves. Therefore, these components are proposed to be revised to specify A-D for both the inboard and outboard valves

## SAFETY ASSESSMENT

Ensuring that primary containment integrity is maintained during required operating conditions is essential to the prevention of radioactive releases. The VY Primary Containment and Reactor Vessel Isolation Control System initiates automatic isolation of appropriate pipelines which penetrate primary containment whenever monitored variables exceed preselected operational limits. Class B isolation valves are installed in process lines that communicate with the containment free air space. The automatic closure of Class B isolation valves is intended to prevent the escape of radioactive materials from the containment free air space. The isolation functions and trip settings used for electrical control of isolation valves are selected to meet the system safety design bases.

The intent of Technical Specification Table 4.7.2 Note 1 is to define isolation valve actuation signals. By clarifying that the ten containment cooling valves listed in Table 4.7.2 isolate on 1) low-low reactor vessel level and low reactor pressure or 2) high drywell pressure signals, an accurate description will be provided.

An abnormally decreasing reactor vessel water level or high drywell pressure could indicate a breach in the nuclear process system barrier. Vessel level and drywell pressure instruments initiate signals to actuate both primary containment isolation and ECCS initiation. The first isolation trip setting, 127" above top of enriched fuel, was selected to initiate isolation of certain valves at the earliest indication of a possible breach yet far enough below normal operational levels to avoid spurious actuation. Valves designated as PCIS Group 2 that isolate at this trip setting include RHR Discharge to Radwaste (10-57, 10-66); Drywell Floor Drain (20-82, 20-83); and Drywell Equipment Drain (20-94, 20-95). The second level trip setting, 82.5" above top of enriched fuel, is indicative of a potential significant loss of vessel water inventory and isolates remaining valves in lines which are not needed for safety features or required for cooling capability. This trip setting also initiates ECCS and isolation of the RHR containment cooling valves.

Valves V10-39A/B, V10-34A/B, V10-26A/B, V10-31A/B and V10-38A/B are designed to perform both a primary containment isolation function and an isolation function in support of RHR LPCI operation. These valves close automatically, if open, upon receipt of an ECCS actuation signal, to ensure that adequate core cooling is being directed to the reactor core via the LPCI mode of RHR operation. The VY design basis loss-of-coolant accident analysis contained in FSAR Section 14.6.3, takes into account RHR containment cooling and activation of containment spray by remote manual control from the Control Room.

Identification of all four inboard and outboard main steam isolation valves on Table 4.7.2 will ensure completeness of primary containment isolation valve information.

Summary

In summary, the revised Technical Specification Table 4.7.2 Note 1 provides clarity and reduces the potential for confusion. Identification of all main steam isolation valves provides completeness.

Attachment 2

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 237

Primary Containment Isolation System Initiation Signal Clarification

Determination of No Significant Hazards Consideration

## Determination of No Significant Hazards Consideration

Description of Amendment Request:

This proposed changes revises Technical Specification Table 4.7.2 Note 1 to clarify Group 2 isolation valve actuation signals and provide complete component identification for main steam isolation valves. These changes provide clarity and completeness, and reduce the potential for confusion.

Basis for No Significant Hazards Determination:

Pursuant to 10CFR50.92, Vermont Yankee (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).

1. The operation of the Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   No changes are being made to plant design, method of operation or method of testing. This change will not alter the basic operation of process variables, systems, or components as described in the safety analysis. No new equipment is introduced.

   The proposed change does not affect the ability of the primary containment isolation system or ECCS systems to perform their required safety functions. The essential safety functions of providing primary containment integrity and providing water to cool the core in the event of an accident are maintained. There is no physical or operational change being made which would alter the sequence of events, plant response, or conclusions of existing safety analyses. This proposed change results in no impact on analyzed accident event precursors or effects.

   Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

   The proposed change does not involve any physical alteration of plant equipment and does not change the method by which any safety-related system performs its function. As such, no new or different types of equipment will be installed, and the basic operation of installed equipment is unchanged. There is no change in plant operation that involves failure modes other than those previously evaluated. The methods governing plant operation and testing remain consistent with current safety analysis assumptions.

   Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not involve a significant reduction in a margin of safety.

No changes are being made to plant design, method of operation or method of testing. This change will not alter the basic operation of process variables, systems, or components as described in the safety analysis. No new equipment is introduced.

The proposed change does not affect the ability of the primary containment isolation system or ECCS systems to perform their required safety functions. The essential safety functions of providing primary containment integrity and providing water to cool the core in the event of an accident are maintained. There is no physical or operational change being made which would alter the sequence of events, plant response, or conclusions of existing safety analyses. This proposed change results in no impact on analyzed accident event precursors or effects.

This proposed change does not alter the physical design of the plant, methods or modes of operation, testing or analyses, thereby resulting in no impact on safety functions. Since the proposed change does not alter the means by which primary containment isolation is maintained and containment cooling valves are isolated in support of RHR LPCI actuation, there is no significant reduction in the margin of safety.

Attachment 3

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 237

Primary Containment Isolation System Initiation Signal Clarification

Marked-up Version of the Current Technical Specifications

(2-80A-D & 2-86A-D)



TABLE 4.7.2

PRIMARY CONTAINMENT ISOLATION VALVES

| Isolation Group (1) | Valve Identification | Number of Power Operated Valves Inboard | Number of Power Operated Valves Outboard | Maximum Operating Time (sec) | Normal Position | Action on Initiating Signal |
|---|---|---|---|---|---|---|
| 1 | Main Steam Line Isolation (2-80A, D & 2-86A, D) | 4 | 4 | 5 (Note 2) | Open | GC |
| 1 | Main Steam Line Drain (2-74, 2-77) | 1 | 1 | 35 | Closed | SC |
| 1 | Recirculation Loop Sample Line (2-39, 2-40) | 1 | 1 | 5 | Closed | SC |
| 2 | RHR Discharge to Radwaste (10-57, 10-66) | | 2 | 25 | Closed | SC |
| 2 | Drywell Floor Drain (20-82, 20-83) | | 2 | 20 | Open | GC |
| 2 | Drywell Equipment Drain (20-94, 20-95) | | 2 | 20 | Open | GC |
| 3 | Drywell Air Purge Inlet (16-19-9) | | 1 | 10 | Closed | SC |
| 3 | Drywell Air Purge Inlet (16-19-8) | | 1 | 10 | Closed | SC |
| 3 | Drywell Purge & Vent Outlet (16-19-7A) | | 1 | 10 | Closed* | SC |
| 3 | Drywell Purge & Vent Outlet Bypass (16-19-6A) | | 1 | 10 | Closed | SC |
| 3 | Drywell & Suppression Chamber Main Exhaust (16-19-7) | | 1 | 10 | Closed* | SC |
| 3 | Suppression Chamber Purge Supply (16-19-10) | | 1 | 10 | Closed | SC |
| 3 | Suppression Chamber Purge & Vent Outlet (16-19-7B) | | 1 | 10 | Closed | SC |
| 3 | Suppression Chamber Purge & Vent Outlet Bypass (16-19-6B) | | 1 | 10 | Open | GC |

* Valves 16-19-7 and 16-19-7A shall have stops installed to limit valve opening to 50° or less.

TABLE 4.7.2 NOTES

1. Isolation signals are as follows:

Group 1: The valves in Group 1 are closed upon any one of the following conditions:

1. Low-low reactor water level
2. High main steam line radiation
3. High main steam line flow
4. High main steam line tunnel temperature
5. Low main steam line pressure (run mode only)
6. Condenser low vacuum

Group 2: The valves in Group 2 are closed upon any one of the following conditions:

*

1. Low reactor water level
2. High drywell pressure

Group 3: The valves in Group 3 are closed upon any one of the following conditions:

1. Low reactor water level
2. High drywell pressure
3. High/low radiation - reactor building ventilation exhaust plenum or refueling floor

Group 4: The valves in Group 4 are closed upon any one of the following conditions:

1. Low reactor water level
2. High drywell pressure
3. High reactor pressure

Group 5: The valves in Group 5 are closed upon low reactor water level.

Group 6: The valves in Group 6 are closed upon any signal representing a steam line break in the HPCI system's or RCIC system's respective steam line. The signals indicating a steam line break for the respective steam line are as follows:

1. High steam line space temperature
2. High steam line flow
3. Low steam line pressure
4. High temperature in the main steam line tunnel (30 minute delay for the HPCI and the RCIC)

2. The closure time shall not be less than 3 seconds.

* Valves V10-39A/B, V10-34A/B, V10-26A/B, V10-31A/B and V10-38A/B are closed upon either 1) low-low reactor water level and low reactor pressure or 2) high drywell pressure.

Attachment 4

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 237

Primary Containment Isolation System Initiation Signal Clarification

Re-typed Technical Specification Pages

**Listing of Affected Technical Specification Pages**

Replace the Vermont Yankee Nuclear Power Station Technical Specifications pages listed below with the revised pages. The revised pages contain vertical lines in the margin indicating the areas of change.

| Remove | Insert |
|---|---|
| 159 | 159 |
| 162 | 162 |

TABLE 4.7.2

PRIMARY CONTAINMENT ISOLATION VALVES

| Isolation Group (1) | Valve Identification | Number of Power Operated Valves | | Maximum Operating Time (sec) | Normal Position | Action on Initiating Signal |
|---|---|---|---|---|---|---|
| | | Inboard | Outboard | | | |
| 1 | Main Steam Line Isolation (2-80A-D & 2-86A-D) | 4 | 4 | 5 (Note 2) | Open | GC |
| 1 | Main Steam Line Drain (2-74, 2-77) | 1 | 1 | 35 | Closed | SC |
| 1 | Recirculation Loop Sample Line (2-39, 2-40) | 1 | 1 | 5 | Closed | SC |
| 2 | RHR Discharge to Radwaste (10-57, 10-66) | | 2 | 25 | Closed | SC |
| 2 | Drywell Floor Drain (20-82, 20-83) | | 2 | 20 | Open | GC |
| 2 | Drywell Equipment Drain (20-94, 20-95) | | 2 | 20 | Open | GC |
| 3 | Drywell Air Purge Inlet (16-19-9) | | 1 | 10 | Closed | SC |
| 3 | Drywell Air Purge Inlet (16-19-8) | | 1 | 10 | Closed | SC |
| 3 | Drywell Purge & Vent Outlet (16-19-7A) | | 1 | 10 | Closed* | SC |
| 3 | Drywell Purge & Vent Outlet Bypass (16-19-6A) | | 1 | 10 | Closed | SC |
| 3 | Drywell & Suppression Chamber Main Exhaust (16-19-7) | | 1 | 10 | Closed* | SC |
| 3 | Suppression Chamber Purge Supply (16-19-10) | | 1 | 10 | Closed | SC |
| 3 | Suppression Chamber Purge & Vent Outlet (16-19-7B) | | 1 | 10 | Closed | SC |
| 3 | Suppression Chamber Purge & Vent Outlet Bypass (16-19-6B) | | 1 | 10 | Open | GC |

* Valves 16-19-7 and 16-19-7A shall have stops installed to limit valve opening to 50° or less.

TABLE 4.7.2 NOTES

1. Isolation signals are as follows:

Group 1: The valves in Group 1 are closed upon any one of the following conditions:

1. Low-low reactor water level
2. High main steam line radiation
3. High main steam line flow
4. High main steam line tunnel temperature
5. Low main steam line pressure (run mode only)
6. Condenser low vacuum

Group 2: The valves in Group 2 are closed upon any one of the following conditions*:

1. Low reactor water level
2. High drywell pressure

Group 3: The valves in Group 3 are closed upon any one of the following conditions:

1. Low reactor water level
2. High drywell pressure
3. High/low radiation - reactor building ventilation exhaust plenum or refueling floor

Group 4: The valves in Group 4 are closed upon any one of the following conditions:

1. Low reactor water level
2. High drywell pressure
3. High reactor pressure

Group 5: The valves in Group 5 are closed upon low reactor water level.

Group 6: The valves in Group 6 are closed upon any signal representing a steam line break in the HPCI system's or RCIC system's respective steam line. The signals indicating a steam line break for the respective steam line are as follows:

1. High steam line space temperature
2. High steam line flow
3. Low steam line pressure
4. High temperature in the main steam line tunnel (30 minute delay for the HPCI and the RCIC)

2. The closure time shall not be less than 3 seconds.

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* Valves V10-39A/B, V10-34A/B, V10-26A/B, V10-31A/B and V10-38A/B are closed upon either 1) low-low reactor water level and low reactor pressure or 2) high drywell pressure.