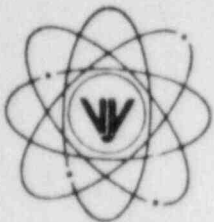


# VERMONT YANKEE NUCLEAR POWER CORPORATION

FVY 84-92



RD 5, Box 169, Ferry Road, Brattleboro, VT 05301

July 25, 1984

REPLY TO:  
ENGINEERING OFFICE

1671 WORCESTER ROAD  
FRAMINGHAM, MASSACHUSETTS 01701  
TELEPHONE 617-872-8100

United States Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

References: (a) License No. DPR-28 (Docket No. 50-271)  
(b) Letter, VYNPC to USNRC, FVY 84-34, dated April 11, 1984  
(c) Letter, VYNPC to USNRC, FVY 84-81, dated July 10, 1984  
(d) Letter, VYNPC to USNRC, FVY 84-90, dated July 19, 1984  
(e) Letter, USNRC to VYNPC, NRY 83-192, dated August 19, 1983  
(f) Letter, VYNPC to USNRC, Proposed Change No. 121 to  
Facility Operating License No. DPR-28, dated June 26, 1984  
(g) Letter, VYNPC to USNRC, FVY 84-61, dated June 12, 1984  
(h) Letter, VYNPC to USNRC, FVY 84-74, dated June 29, 1984

Subject: Additional Requests for Scheduling Extensions for Environmental  
Qualification of Certain Electrical Components at Vermont Yankee

Dear Sir:

In accordance with the provisions of 10CFR50.49(g), Vermont Yankee Nuclear Power Corporation hereby requests scheduling extensions for certain electrical components required to be environmentally qualified prior to startup from our 1984 refueling outage, in accordance with the provisions of 10CFR50.49. A list of these components is provided in Enclosure 1 to this letter.

For each of the components listed in Enclosure (1), we have included a Justification for Continued Operation (JCO). In most cases, the associated JCO was previously submitted to you in Enclosure (7) to the Vermont Yankee Upgraded Environmental Qualification (EQ) Program, which was forwarded by letter, dated April 11, 1984 [Reference (b)]. However, for the purposes of expediting your review, all associated component JCOs are provided in Enclosure (2) to this letter. The components include:

- o 6 motor operated valves
- o 4 solenoid valves
- o The Local Power Range Monitors (LPRMs) and associated components
- o The Control Rod Position Indication probes and associated components

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United States Nuclear Regulatory Commission  
Attention: Mr. Harold R. Denton, Director

July 25, 1984  
Page 2

We are requesting schedular extensions for these components until no later than startup from our 1985 refueling outage which is presently scheduled to commence in early September 1985.

The basis for schedular relief is discussed in Enclosure (1). We trust that this information, coupled with the associated component JCO, provide an adequate basis for your approval of our extension requests. Because your review and approval of our requests is required prior to restart from our present refueling outage, which is now scheduled for August 2, 1984, we request your prompt attention to this matter.

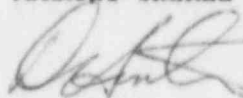
The components listed in Enclosure (1) incorporate and supersede the component schedular extension requests forwarded to you by letters, dated July 10, 1984 [Reference (c)], and July 19, 1984 [Reference (d)].

Finally, since the submittal of our Upgraded Environmental Qualification Program, we have continued our engineering effort to verify that all electrical components within the scope of 10CFR50.49 are environmentally qualified prior to startup from our 1984 refueling outage. With the exception of those components for which we are requesting schedular relief, to the best of our knowledge we will have ensured that all components within the scope of our Upgraded EQ Program comply with the provisions of 10CFR50.49 upon startup from our present refueling outage.

We trust that this information is deemed acceptable; however, should you have any questions regarding this matter, please contact us. Your expedited review of our component schedular extension requests will be greatly appreciated.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION



D. Hunter  
Vice President

JBS/smh

Enclosure

Enclosure (1)

VERMONT YANKEE NUCLEAR  
POWER CORPORATION

SCHEDULAR EXTENSION REQUESTS FOR  
ENVIRONMENTAL QUALIFICATION OF CERTAIN  
ELECTRICAL COMPONENTS

List of Vermont Yankee Environmental  
Qualification Program Electrical  
Components Requiring Scheduler Extensions

<u>Component TAG #</u>	<u>Component Type</u>	<u>Reason for Extension Request</u>	<u>Justification For Continued Operation Reference #</u>
MOV-14-12A	Motor-Operated Valve	Delivery	52
MOV-14-12B	Motor-Operated Valve	Delivery	52
MOV-13-15	Motor-Operated Valve	See Note (1)	46
MOV-10-13B	Motor-Operated Valve	See Note (1)	68
MOV-10-39A	Motor-Operated Valve	See Note (1)	69
MOV-10-32	Motor-Operated Valve	See Note (2)	43
SE-70-4A	Solenoid-Operated Valve	See Note (3)	66
SE-70-4B	Solenoid-Operated Valve	See Note (3)	66
SE-70-4C	Solenoid-Operated Valve	See Note (3)	66
SE-70-4D	Solenoid-Operated Valve	See Note (3)	66
-	Local Power Range Monitors (LPRMs)	See Note (4)	39
-	Control Rod Position Indication	See Note (5)	29

Notes

- 1) During our field verification walkdowns performed during this outage, the serial numbers on the valves were discovered to be different than what our EQ records indicated.

The manufacturer is being contacted to determine the qualification status of these components.

- 2) This component is the inboard motor-operated isolation valve on the Residual Heat Removal (RHR) Head Spray line. The Head Spray line has been permanently disconnected from the reactor vessel and is blanked off with a blind flange inside the drywell.

Because of this modification, MOV-10-32 is no longer required to be leak rate tested in accordance with 10CFR, Part 50, Appendix J, and is not within the scope of our EQ Program since it is no longer relied upon for primary containment isolation. As described in Section 3.2 of the NRC's Appendix J Safety Evaluation Report (SER), dated August 19, 1983 [Reference (e)], Type C testing is not required for lines forming a closed, seismically-qualified loop, with a water seal, within the Reactor Building.

MOV-10-32 leak rate testing requirements have been deleted from our current Appendix J Leak Rate Testing Program. This program was submitted to the NRC for approval by letter, dated June 26, 1984 [Reference (f)] and is currently under review.

- 3) Intended replacement component did not function properly during post-installation testing. Original component type has been re-installed. We are presently evaluating a resolution for this component.

- 4) Local Power Range Monitors (LPRMs)

The LPRMs provide neutron flux post-accident monitoring information to verify the reactor is shut down. Reactor shutdown will be verified very shortly after scram signals are generated.

Due to a lack of qualification information, we have not been able to document the environmental qualification of the LPRMs.

We intend to investigate this problem further under our Regulatory Guide 1.97 Assessment Program, being implemented in response to NUREG-0737, Supplement 1. As stated in our letter, dated June 12, 1984 [Reference (g)], the results of our program, as well as a schedule for implementing any necessary component modifications, will be submitted to the NRC in October 1984.

Notes  
(Continued)

5) Control Rod Position Indication

The Control Rod Position Indication Probes and associated components provide information to verify a reactor scram. Reactor scram will be verified very shortly after scram signals are generated.

Due to a lack of qualification information, we have not been able to document the environmental qualification of this equipment.

We intend to investigate this problem further under our Regulatory Guide 1.97 Assessment Program, consistent with the schedule discussed in our letter dated June 12, 1984 [Reference (g)].

Enclosure (2)

VERMONT YANKEE NUCLEAR  
POWER CORPORATION

ENVIRONMENTAL QUALIFICATION JUSTIFICATIONS  
FOR CONTINUED OPERATION (JCOs)

Revision 1

July 25, 1984



Revision 1JCO Index

<u>Component/Service</u>	<u>JCO No.</u>
Control Rod Drive System CR Position Information Components	29
Neutron Monitoring System LPRMs	39
Residual Heat Removal System MOV-10-32	43
MOV-10-13B	68
MOV-10-39A	69
Reactor Core Isolation Cooling System MOV 13-15	46
Core Spray System MOV-14-12A, B	52
Service Water and Cooling Water System SE-70-4A, B, C, D	66



VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: Control Rod Position Indication  
SYSTEM: Neutron Monitoring  
MANUFACTURER: General Electric  
MODEL:  
LOCATION: Primary Containment  
FUNCTION: Reactor Shutdown Verification  
SERVICE: Position Indication and Associated Switches, Cables, and Connectors

QUALIFICATION DISCREPANCY:

Lack of qualification documentation.

JUSTIFICATION FOR CONTINUED OPERATION:

For a BWR, core reactivity design is such that it is shut down with rods-in. This is verified within seconds after a scram. Rod position does not need to be known after that, as rods cannot be withdrawn.

It is our engineering judgement that this equipment will function post-LOCA to provide verification of rods-in within seconds after a scram. Subsequent loss of indication is not relevant.

Backup indication is provided by neutron monitoring.

Therefore, justification for continued operation is justified.

VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: Local Power Range Monitors (LPRM)

SYSTEM: Neutron Monitoring

MANUFACTURER: General Electric

MODEL: 729E989P6

LOCATION: Primary Containment

FUNCTION: Reactor Shutdown Verification

SERVICE: LPRMs and Associated Cables and Connectors

QUALIFICATION DISCREPANCY:

Lack of qualification documentation.

JUSTIFICATION FOR CONTINUED OPERATION:

The LPRMs are designed to provide local power indication in the power range. They can indicate that the reactor is shutdown by showing zero power, but this is not definitive.

For a boiling water reactor, the core reactivity design is such that it is shut down at any temperature and pressure with control rods inserted. Therefore, the only indication that an operator needs is rod position at full-in. The rod position indication system provides this, and rods-in is quickly verified by operators after a scram. After that, they do not need to know rod position, as rods cannot be withdrawn.

The LPRMs are backup indication to rod position, and are also consulted within seconds after a scram. They are not required after that. It is our engineering judgement that this equipment will function to provide verification of reactor shutdown prior to any environmental degradation post-LOCA.

Therefore, continued operation is justified.

VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: Motor-Operated Valve  
SYSTEM: RHR  
MANUFACTURER: Limitorque  
MODEL: SMB-00  
LOCATION: Primary Containment (Volume PC)  
FUNCTION: RHR Head Spray Isolation  
SERVICE: MOV-10-32

QUALIFICATION DISCREPANCY:

No radiation data available.

JUSTIFICATION FOR CONTINUED OPERATION:

The RHR head spray valve's only purpose is to provide containment isolation. The head spray line is blanked off inside the drywell.

A second qualified valve, MOV-10-33, is in series with this valve and is located in the Reactor Building (Volume 21). Both these valves are normally closed during operation.

The blanking off of the line serves as a second alternative piece of equipment which accomplishes the safety function.

Therefore, justification for the continued safe operation of the plant is demonstrated.

VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: MOTOR-OPERATED VALVE  
SYSTEM: RHR  
MANUFACTURER: Limitorque  
MODEL:  
LOCATION: Reactor Building (Volume 32)  
FUNCTION: "B" RHR Pump Suction From Torus  
SERVICE: MOV 10-13B

QUALIFICATION DISCREPANCY:

Lack of documentation on motor.

JUSTIFICATION FOR CONTINUED OPERATION:

This valve is normally open and during an accident it would remain in the open position. Failure of the motor will not cause the valve to close.

Although for long-term LOCA flexibility, it may be desirable to operate this valve, all essential accident safety functions are normally performed with this valve open.

This valve services the "B" RHR pump of the "B" RHR Subsystem. A qualified "D" RHR pump, which operates in parallel with the "B" pump, is available.

Therefore, justification for the continued safe operation of the plant is demonstrated.

VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: MOTOR-OPERATED VALVE  
SYSTEM: RHR  
MANUFACTURER: Limitorque  
MODEL:  
LOCATION: Reactor Building (Volume 46)  
FUNCTION: "A" RHR Torus Cooling and Spray Outboard Isolation  
SERVICE: MOV 10-39A

QUALIFICATION DISCREPANCY:

Lack of documentation.

JUSTIFICATION FOR CONTINUED OPERATION:

This valve is normally closed and is required to open shortly after an accident for Torus Cooling and spray functions.

It is likely that Torus Cooling will be initiated within ten (10) minutes after an accident in which blowdown to the Torus is involved. The environmental stress received by this valve within the first ten (10) minutes of an accident should not prevent it from opening in our judgement.

If this valve fails to operate properly during an accident, the redundant, qualified "B"-RHR Torus Cooling Subsystem is also available.

Therefore, justification for the continued safe operation of the plant is demonstrated.

VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: Motor-Operated Valve

SYSTEM: RCIC

MANUFACTURER: Limitorque

MODEL: SMB-000

LOCATION: Primary Containment

FUNCTION: Inboard RCIC Steam Isolation

SERVICE: MOV-13-15

QUALIFICATION DISCREPANCY:

No radiation data on motor.

JUSTIFICATION FOR CONTINUED OPERATION:

This valve isolates the RCIC steam line following any event where isolation is required. Failure of the motor due to radiation damage will result in the valve failing "as is". Normally this valve is open, and it is required to close immediately following a RCIC break, immediately following a large LOCA, and approximately 6 hours following a small LOCA.

MOV-13-16 which, although not qualified, receives significantly less radiation, is in series with this valve and receives the same automatic isolation signals. There are other valves, which are not required to be qualified, in series located near the RCIC turbine which can isolate steam to the turbine. These valves require operator action to actuate them.

It is highly unlikely that this valve will fail as a result of radiation damage. The incremental increase in accumulated radiation dose from a large break LOCA should not prevent valve closure since the valve operates within the first minutes of the accident.

Therefore, justification for the continued safe operation of the plant is demonstrated.



VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: Motor-Operated Valve

SYSTEM: Core Spray

MANUFACTURER: Limitorque

MODEL: SMB-2

LOCATION: Reactor Building (A-Volume 23, B-Volume 29)

FUNCTION: Core Spray Injection

SERVICE: MOV-14-12A  
MOV-14-12B

QUALIFICATION DISCREPANCY:

No radiation data on motor and motor brake.

JUSTIFICATION FOR CONTINUED OPERATION:

These valves are normally closed and are required to automatically open to inject core spray water into the reactor vessel following a LOCA. Valve 12A is in the "A" Core Spray Train, and 12B is in the "B" Train.

The core spray systems function as backups to the LPCI Systems.

There is no radiation data available on the motor or motor brake. Failure of these components would result in the valve not opening or only partially opening.

The valves are located in an area which normally has low radiation level and they open in the first minutes following a large LOCA before a harsh radiation environment develops. It is highly unlikely that they will fail due to the incremental increase in accumulated radiation dose from a large break LOCA.

Subsequent repositioning of the valves could be desirable during the long-term course of the event but this is not essential.

Therefore, justification for the continued safe operation of the plant is demonstrated.



VERMONT YANKEE  
JUSTIFICATION FOR CONTINUED OPERATION

COMPONENT: Solenoid-Operated Valve

SYSTEM: Residual Heat Removal Service Water Cooling

MANUFACTURER: ASCO

MODEL: HPX-8211 C13

LOCATION: Reactor Building (see Service) Elevation 232'-6"

FUNCTION: RHR Service Water Pump Motor Cooling

SERVICE: SE-70-4A (Volume 45)  
SE-70-4B (Volume 47)  
SE-70-4C (Volume 45)  
SE-70-4D (Volume 47)

QUALIFICATION DISCREPANCY:

No qualification documentation available.

JUSTIFICATION FOR CONTINUED OPERATION:

Each of these valves supply cooling water to their respective RHR service water cooling pump motor thrust bearing. Motor cooling is required when the pump is operating.

These solenoids are energized to close. Electrical failure of the solenoid will result in the opening of the solenoid valve which is the desired fail-safe position.

Each solenoid has a manual bypass valve which could be opened if the area was accessible.

In the absolute worst case scenario these valves are exposed to an environment which gradually heats up to a maximum of 104°F at ambient pressure and relative humidity. The worst case radiation exposure after 40 years plus 1 year post-accident is only  $1.3 \times 10^6$  rads.

The harsh environment for which this equipment must be qualified results from low probability events.

Therefore, justification for the continued safe operation of the plant is demonstrated.