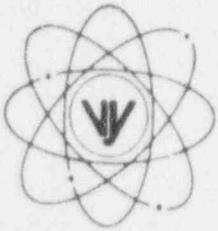


# VERMONT YANKEE NUCLEAR POWER CORPORATION



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REPLY TO  
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April 4, 1996  
BVY 96-43

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

- References:
- (a) License No. DPR-28 (Docket No. 50-271)
  - (b) Letter, USNRC to VYNPC, NVY 85-5, dated January 13, 1983
  - (c) Letter, USNRC to VYNPC, NVY 91-98, dated June 5, 1991
  - (d) Letter, USNRC to VYNPC, NVY 92-163, dated September 1, 1992
  - (e) Letter, USNRC to VYNPC, NVY 93-91, dated June 18, 1993
  - (f) Letter, USNRC to VYNPC, NVY 94-85, dated June 1, 1994

Subject: Request for Exemption from 10 CFR Part 50, Appendix R, Section III.L, "Alternative and Dedicated Shutdown Capability"

In accordance with the provisions of 10 CFR Part 50.12, Vermont Yankee Nuclear Power Corporation hereby requests an exemption from the provisions of 10 CFR Part 50, Appendix R, Section III.L, "Alternative and Dedicated Shutdown Capability." Specifically, an exemption is requested to permit use of our existing Station Blackout alternate ac power source in an alternate shutdown mode.

### Background

10CFR 50, Appendix R, Section III, "Alternative and Dedicated Shutdown Capability," paragraph L.3, requires that:

"the alternative shutdown capability shall be independent of the specific fire area(s) and shall accommodate postfire conditions where offsite power is available and where offsite power is not available for 72 hours."

Vermont Yankee utilizes alternative shutdown capability in the event of a fire in the control room or cable spreading room. Currently, Vermont Yankee uses one of the two onsite emergency diesel generators in an alternate shutdown mode as a source of ac power when offsite power is not available in the event of a control room or cable spreading room fire.

An exemption from the above requirement is requested to allow use of the Vernon Tie Line, Vermont Yankee's Station Blackout alternate ac power source, as an acceptable alternative to an onsite emergency diesel generator for fire events where offsite power is not available. An exemption to use

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the Vernon Tie Line when offsite power is not available is considered necessary because the Tie Line originates from the adjacent Vernon hydroelectric station which is considered offsite power.

This exemption is requested to facilitate the restoration of ac power to safe shutdown equipment and to reduce the operator timeline for initiating alternate shutdown systems. Vermont Yankee's Appendix R design verification effort has determined that additional margin is necessary in the amount of time available for the operator actions necessary to initiate alternate shutdown systems. The current time to restore ac power using the onsite emergency diesel is approximately 30 minutes. Use of the Vernon Tie will reduce the time to restore ac power to approximately 10 minutes.

The Vernon Tie is a dedicated underground transmission line from the Vernon hydroelectric station to the Vermont Yankee 4160 Volt emergency buses. The Vernon Station contains multiple generating units which normally supply between 3MW and 30MW of power to a 69kV transmission system. The 69kV system is physically and electrically independent of Vermont Yankee's normal sources of off-site power, which are the 345kV and 115kV transmission systems. Power can also be drawn from the 69kV system to supply the Tie Line if generation at the hydroelectric station were not sufficient to supply Vermont Yankee's emergency needs. The Tie Line has the equivalent capacity of one emergency diesel generator and therefore has the capability to supply either the Station Blackout loads or all the ac power loads needed for the alternate shutdown system. The Vernon Tie can be connected to the emergency buses by the control room operator within a few minutes of the onset of a Station Blackout by the operation of manual control switches. The control switches operate circuit breakers in the Vermont Yankee switchgear rooms. No actions are required at the hydroelectric station to restore ac power at Vermont Yankee. References (b), (c), (d) and (e) contain a more detailed description of the Vernon Tie and document the NRC staff's review and acceptance of the Vernon Tie as an acceptable Station Blackout power source.

Vermont Yankee is implementing a design modification to permit use of the Vernon Tie as part of the alternate shutdown system. The modification will provide isolation/transfer switches and alternate controls local to the switchgear room Tie Line circuit breakers. In the event of a control room or cable spreading room fire, when normal control for the Vernon Tie may be unavailable, the operators will proceed to the switchgear room and perform the following actions to connect the Vernon Tie:

- Open breakers to most loads (same as existing procedure);
- Confirm that other emergency bus supply breakers (normal bus tie breaker and diesel generator supply) are open;
- Transfer breaker control power to the alternate source;
- Operate the Vernon Tie isolation/transfer switch;
- Close the Vernon Tie circuit breakers using the alternate control switches;

No actions are necessary from the Vernon hydroelectric station. Based on plant walkdowns, Vermont Yankee estimates that the actions listed above will take approximately ten minutes.

This design change will not affect the availability of the onsite diesel generators during alternate shutdown fire scenarios. Therefore, although no longer relied upon for 10CFR Part 50, Appendix R

compliance, a diesel generator will be available to provide backup power in the unlikely event that the Vernon Tie is unavailable. Also, this design change will not affect operation of the Station Blackout power source from the Control Room and therefore will not affect compliance with 10 CFR Part 50.63.

#### Justification

10CFR Part 50, Appendix R, Section III, paragraph L.3 requires that:

“alternative shutdown capability shall be independent of the specific fire area(s) and shall accommodate postfire conditions where offsite power is available and where offsite power is not available for 72 hours. Procedures shall be in effect to implement this capability.”

The Vernon Tie, when modified to permit circuit breaker operation from the switchgear rooms, will supply an additional means of powering a 4160V switchgear bus independent of the control room and cable spreading room fire areas. Also, the Vernon Tie is independent of normal offsite power and onsite emergency diesel generators and will be available when neither normal offsite power nor onsite emergency diesel generators are available. Use of the Vernon Tie will be incorporated into the existing plant procedure for “Shutdown Using Alternate Shutdown Methods.”

Use of the Vernon Tie has several significant advantages over use of an emergency diesel generator to meet alternate shutdown requirements. These advantages include:

- AC Power can be restored using the Vernon Tie with simpler operator actions. All actions are accomplished within the switchgear rooms. Use of the Vernon Tie eliminates operator actions in the diesel generator room and the need to coordinate operator actions between the diesel generator room and the switchgear rooms.
- AC Power can be restored promptly and continue indefinitely, without dependence on support systems such as the service water, fuel oil transfer, and air start systems, which are needed for emergency diesel generator operation.
- The Vernon Tie is normally operating and available. Reliability is considered significantly higher than a single diesel generator which must be started from a standby mode to restore power.

As documented in reference (e), the availability of Vernon Station has historically been well above 99%, exceeding the required alternate ac source availability of 95%. The Tie Line is normally energized and indication of Tie Line voltage and Vernon Station generation output are available continuously in the Vermont Yankee control room. Also, load testing of the Vernon Tie is performed during each refueling outage to demonstrate the load carrying capability of the Tie Line. Thus, the Vernon Tie is maintained as a reliable power source and is well suited to promptly provide ac power to alternate shutdown systems in the event normal offsite power or the onsite emergency diesels are not available.

Planned maintenance and surveillance activities for the Vernon Tie Line are administratively controlled to prevent Vernon Tie maintenance or surveillance coincident with planned maintenance of either onsite emergency diesel generator.

Because of the safety significance of an unplanned unavailability of the Vernon Tie, Vermont Yankee shall institute the following administrative limit:

*Power operation may continue for no more than 15 days, unless the Vernon Tie is returned to service or a Basis for Maintaining Operability (BMO) evaluation is written and approved.*

At Vermont Yankee, a BMO evaluation is developed to provide the basis for maintaining continued operation with a known deficiency. A valid BMO must be able to demonstrate that there is no unacceptable reduction in the protection provided to public health and safety, and/or there are appropriate compensating factors that can be applied in the interim until the deficiency is corrected.

#### Special Circumstances

Special Circumstances, as defined in 10 CFR Part 50.12(a)(2)(ii) and 50.12(a)(2)(iv), are present which warrant granting an exemption from the requirements of the regulation. By making use of the existing Station Blackout alternate ac source, modified to permit operation from the switchgear rooms, Vermont Yankee believes the underlying purpose of 10 CFR Part 50, Appendix R, Section III, paragraph L.3 is achieved. In addition, by using the Station Blackout alternate ac source, ac power is restored more rapidly, using simpler operator procedures, and without reliance on additional support systems, resulting in a benefit to the public health and safety.

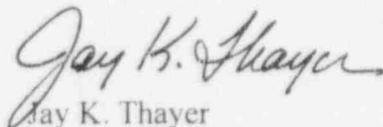
#### Conclusion

Based on the technical justification and special circumstances detailed above, Vermont Yankee requests an exemption from the requirements of 10 CFR Part 50, Appendix R, Section III "Alternative and Dedicated Shutdown Capability", paragraph L.3. The exemption is requested for the use of the Vernon Tie Line operated from the switchgear rooms for control room and cable spreading room fires.

We trust that our request is acceptable; however, should you have any questions on this matter, please contact us.

Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION



Jay K. Thayer  
Vice President, Engineering

- c: USNRC Region I Administrator
- USNRC Resident Inspector - VYNPS
- USNRC Project Manager - VYNPS