UNITED STATES OF AMERICA
BEFORE THE NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
Vermont Yankee Nuclear Power Corporation	)	Docket No. 50-271-OLA
(Vermont Yankee Nuclear Power Station)	)	

NEW ENGLAND COALITION ON NUCLEAR POLLUTION'S COMMENTS IN OPPOSITION TO PROPOSED FINDING OF NO SIGNIFICANT HAZARDS CONSIDERATION

Introduction

On January 21, 1993, the Nuclear Regulatory Commission ("NRC" or "Commission") issued public notice of an operating license amendment request by the Vermont Yankee Nuclear Power Corporation ("Vermont Yankee"), which would permit Vermont Yankee to perform extensive maintenance on the Vermont Yankee Nuclear Power Station's ("VYNPS's") "B" diesel generator for fourteen days during the current operating cycle, while the reactor is operating at power.[1] 58 Fed. Reg. 5,435. The NRC proposes to make a determination of no significant hazards consideration regarding the proposed license amendment.

The New England Coalition on Nuclear Pollution ("NECNP") opposes the proposed finding of no significant hazards consideration. NECNP's Opposition is supported by the affidavit of Robert D. Pollard, a nuclear safety engineer. Attachment 1. As dis-

1 NECNP has requested a hearing on the proposed license amendment. New England Coalition's Request for Hearing on Proposed Operating License Amendment (February 22, 1993).

cussed below, the intentional disabling of one of Vermont Yankee Nuclear Power Station's ("VYNPS's") two diesel generators would violate General Design Criterion ("GDC") 17, the NRC's fundamental requirement that onsite electric power supplies must "have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure." 10 C.F.R. Part 50, Appendix A, GDC 17. In addition, the proposed amendment violates the technical specifications for VYNPS, which contain no provision for deliberate removal of the diesel generators from service during power operation. On its face, ty, 2-2 the intentional disabling of an essential safety system, in violation of the NRC's General Design Criteria, NRC regulatory guidance, and VYNPS technical specifications, raises significant hazards considerations. Accordingly, pursuant to Section 189a(2)(A) of the Atomic Energy Act, 42 U.S.C. § 2239(a)(2)(A), the NRC must provide a hearing on the proposed license amendment before it can be issued.

I. STATEMENT OF FACTS

VYNPS has two standby diesel generators which constitute the onsite electrical power supply for the plant's structures, systems, and components important to safety. GDC 17 requires that each of the diesel generators must be safety grade and designed to "provide sufficient capacity and capability" to maintain plant safety during design basis accidents, assuming a loss of offsite power.

Pursuant to GDC 17 and the plant's Limiting Conditions for Operation ("LCO's"), VYNPS cannot be operated at power unless

both diesel generators are functional. As provided by Technical Specification ("TS") 3.10.A.1,

> Both emergency diesel generators shall be operable and capable of starting and reaching rated voltage and frequency in not more than 13 seconds.

A limited exception to this requirement is provided in TS 3.5.H.1:

> During any period when one of the standby diesel generators is inoperable, continued reactor operation is permissible only during the succeeding seven days, provided that all of the Low Pressure Core Cooling and Containment Cooling Subsystems connecting to the operable diesel generator shall be operable.

However, TS 3.5.H.1 also states that "If this requirement cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours."

On three previous occasions, Vermont Yankee has invoked TS 3.5.H.1 for the purpose of repairing diesel generators at power. In 1990, the NRC granted Vermont Yankee permission to intentionally disable and overhaul one of its diesel generators while operating at power, on the ground that a local hydroelectric station was available to provide backup power.[2] See Memorandum from Thomas E. Murley, Office of Nuclear Reactor Regulation, to Thomas T. Martin, Regional Administrator, Region I (May 18, 1990) and enclosures, Attachment 2.

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2 As discussed below, the practice of intentionally disabling diesel generators while at power in order to make routine repairs is not permitted by either GDC 17 or the technical specifications for VYNPS. Thus, NECNP believes that the NRC erred when it granted permission for the 1990 repairs.

Last year, on two separate occasions a month apart, Vermont Yankee declared its "A" diesel generator inoperable after "abnormalities were encountered with the jacket cooling system." Letter from Warren P. Murphy, Vermont Yankee, to United States Nuclear Regulatory Commission re: Proposed Change No. 166, One-Time Extended Emergency Diesel Generator (EDG) LCO Period to Support Maintenance Activities at 2 (December 15, 1992) (hereinafter "Murphy Letter"), Attachment 3. On May 28, 1992, and again on June 23, 1992, Vermont Yankee began diesel generator repairs while the reactor was at power, as permitted by TS 3.5.H.1 for "inoperable" diesel generators. When Vermont Yankee found that these repairs could not be completed within 7 days, as required by TS 3.5.H.1, it applied for and received temporary waivers which allowed a one-day extension for the repairs begun in May, and a two-day extension for the repairs begun in June. See BVY 92-068, Letter from Warren P. Murphy, Vermont Yankee, to United States Nuclear Regulatory Commission (June 3, 1992); BVY 92-074, Letter from Warren P. Murphy, Vermont Yankee, to United States Nuclear Regulatory Commission (June 29, 1992), Attachments 4 and 5, respectively.

According to Vermont Yankee, surveillance of the "B" diesel generator "has not revealed any indication" of the problems which rendered "A" diesel generator inoperable. Murphy Letter at 2. Nevertheless, Vermont Yankee deemed it "prudent" to make the same repairs to the "B" diesel generator that it had made to the "A" diesel generator "at the earliest opportunity." Id. Rather than

waiting until the next refueling outage or scheduling an outage to make the repairs, Vermont Yankee submitted a letter to NRC requesting a change to TS 3.5.H.1 which would allow a "one-time extension" from the LCO of 7 days to 14 days in which to make those repairs, as well as to conduct the routine 18-month overhaul of the diesel generator. Murphy Letter, Attachment 3. On January 21, 1993, the NRC published a Federal Register notice of the proposed license amendment, along with a proposed finding that no prior hearing on the amendment is required because it poses no significant hazards consideration.

II. THE PROPOSED LICENSE AMENDMENT POSES SIGNIFICANT HAZARDS CONSIDERATIONS.

A. Statutory and Regulatory Framework

Pursuant to Section 189a(2)(A) of the Atomic Energy Act and 10 C.F.R. 50.92(c), the NRC may not issue an operating license amendment before granting a public hearing unless it determines that the proposed amendment poses "no significant hazards consideration," i.e., that the amendment would 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 the margin of safety.

In passing the enabling legislation for this regulatory provision, Congress recognized that

> issuing the order in advance of a hearing would as a practical matter, foreclose the public's right to have its views considered. In addition, the licensing board would often be unable to order any substantial relief as a result of an after-the-fact hearing.

Conf. Rep. No. 97-884, 97th Cong., 2d Sess., at 37-38 (1982).

Thus, the conferees noted their intent that

> in determining whether a proposed license amendment involves no significant hazards consideration, the Commission should be especially sensitive to the issues posed by license amendments that have irreversible consequences (such as those permitting an increase in the amount of effluents or radiation emitted from a facility or allowing a facility to operate for a period of time without full safety protections.)

Id. (emphasis added)

In response to Congress' expression of concern, the Commission "made clear" in the preamble to § 50.92 that

> an amendment which allows a plant to operate at full power during which one or more safety systems are not operable would be treated in the same way as other examples considered likely to involve a significant hazards consideration.

Final Procedures and Standards on No Significant Hazards Considerations, 51 Fed. Reg. 7,744, 7,750, Col. 3 (March 6, 1986). In addition, the Commission "charge[d] the NRC staff to assure that doubtful or borderline cases are not found to involve no significant hazards consideration." 51 Fed. Reg. at 7,753, Cols. 2-3.

B. The Proposed License Amendment Raises Significant Hazards Considerations

The circumstances of this case, involving the disabling of a major safety component in violation of NRC General Design Criteria and VYNPS technical specifications, raise significant hazards considerations in the starkest terms. Even were these violations more "doubtful or borderline" [51 Fed. Reg. at 7,753, Cols. 2-3], the serious safety questions raised by the proposed

amendment would dictate against the issuance of a no significant hazards consideration finding, and require the granting of a prior hearing on Vermont Yankee's proposed license amendment.

1. The Proposed Amendment Involves the Intentional Disabling of A Safety System, In Violation of GDC 17.

Under the Commission's standards for finding no significant hazards considerations, see 51 Fed. Reg. at 7,750, Col. 3, there can be no question that the proposed amendment raises "significant hazards" considerations, because it would allow the VYNPS to operate "at full power during which one or more safety systems [i.e., the "B" diesel generator] are not operable," in direct violation of GDC 17. The importance of compliance with GDC 17 cannot be gainsaid. GDC 17 is one of the NRC's "minimum requirements" that establishes the "principal design criteria" for "structures, systems, and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public." Introduction to 10 C.F.R. Part 50, Appendix A. In evaluating the sufficiency of the onsite power supply to power safety systems, GDC 17 assumes that offsite power systems are unavailable, and requires the provision of onsite power supplies "with sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure." Thus, in evaluating whether Vermont Yankee's diesel generators comply with GDC 17, it must be assumed that (a) no offsite power is available and (b) one of the two diesel generators has failed. If the remaining diesel generator were in-

tentionally disabled, as proposed in Vermont Yankee's license amendment application, VYNPS would have no protection against a single failure of a diesel generator, in direct violation of GDC 17.

Moreover, it is clear that such a violation of GDC 17 could increase accident risk at VYNPS in all three of the aspects by which NRC judges "significant hazards" under 10 C.F.R. § 50.92(c)(1)-(3). With respect to the first criterion, the intentional disabling of the "B" diesel generator would significantly compound the "probability or consequences" associated with a "previously evaluated" accident -- i.e., the unavailability of one of the diesel generators during a loss of offsite power, as contemplated by GDC 17. If the "B" diesel generator is intentionally disabled and the "A" diesel generator must be assumed to be disabled as required by GDC 17, this would leave VYNPS without any source of onsite power. Under such circumstances, a design basis accident would be transformed to a beyond design basis accident, with the potential for meltdown and catastrophic consequences. Thus, the proposed amendment raises significant hazards considerations under the second criterion of § 50.92(c). Finally, the significantly increased probability and consequences of a serious accident would obviously involve a "significant reduction in the margin of safety" at the plant, thus establishing a significant hazard under § 50.92(c)(3).

2. The Intentional Disabling of a Diesel Generator for Repairs at Power Violates Vermont Yankee's Technical Specifications and NRC Regulatory Guidance.

Vermont Yankee's operating license amendment application is based on the assumption that it is already entitled, through its technical specifications, to disable and repair the "B" diesel generator at power, and that all it requires is an extension of the seven-day period for repairs allowed by TS 3.5.H.1. See Murphy letter at 1. However, Vermont Yankee's position is based on an incorrect interpretation of VYNPS's technical specifications. In fact, the intentional disabling of a diesel generator for repairs that could otherwise be postponed until a planned outage violates the VYNPS technical specifications.

Pursuant to GDC 17, the principal VYNPS technical specification governing standby diesel generators, TS 3.10.A.1, requires that both diesel generators must be "operable and capable of reaching rated voltage and frequency in not more than 13 seconds." TS 3.5.H.1, upon which Vermont Yankee relies, creates a limited exception to this rule, providing that "During any period when one of the standby diesel generators is inoperable, continued reactor operation is permissible only during the succeeding seven days . . ."

Vermont Yankee apparently interprets the term "inoperable", as used in TS 3.5.H.1, to include the intentional disabling of the diesel generators for routine or non-urgent repairs. Thus, as read by Vermont Yankee, TS 3.5.H.1 permits it to intentionally disable one of its diesel generators for repairs at any time, as

long as the duration of the repairs does not exceed 7 days. However, such a broad interpretation of the exception in TS 3.5.H.1 would swallow the general rule established by GDC 17 and TS 3.10.A.1, that VYNPS cannot operate unless both diesel generators are operable and available. In effect, under Vermont Yankee's interpretation of the technical specifications, a diesel generator could be disabled for repairs every two weeks, as long as the repairs could be finished in seven days.

Vermont Yankee's interpretation of its technical specifications is also inconsistent with the guidance set forth in Reg. Guide 1.93, which contemplates at power repairs only after the risks of shutting down the reactor have been balanced against the risks of continuing to operate with only one diesel generator:

> Under certain conditions, it may be safer to continue operation at full or reduced power for a limited time than to effect an immediate shutdown on the loss of some of the required electric power sources. Such decisions should be based on an evaluation that balances the risks associated with immediate shutdown against those associated with continued operation. If, on balance, immediate shutdown is the safer course, the unit should be brought promptly to an orderly shutdown, and to a cold shutdown as soon as possible. For example, the risks associated with an immediate shutdown on the loss of onsite a.c. power supply during a period of light system load would tend to be less than those during a peak load period because the stability of the offsite power system would be relatively higher. If, on balance, continued power operation is the safer course, the period of continued operation should be used to restore the lost source and to prepare for an orderly shutdown, provided, of course, that these activities do not risk further degradation of the electric power system or in any way jeopardize plant safety.

Reg. Guide 1.93 at 1. Under this standard, the only acceptable justification for repairing the diesel generators at power would

be a showing that it is safer to do that than to shut the plant down -- an argument that could be made only if the diesel generator was unable to function, or so unreliable as to be effectively inoperable. Those circumstances do not exist here, where the "B" diesel generator is functional, and Vermont Yankee seeks permission simply to make non-urgent repairs and to conduct routine maintenance. Thus, under the guidance of Reg. Guide 1.93, the VYNPS technical specifications cannot be read to permit the intentional disabling of the diesel generators in order to perform routine repairs.

Because Vermont Yankee's proposal to intentionally disable the "B" diesel generator during power operation constitutes a departure from its technical specifications governing important safety functions, it necessarily raises "significant hazards considerations." In fact, while the NRC staff concluded (erroneously, NECNP submits) that Vermont Yankee's 1990 bid to overhaul its diesel generator during power operation was sanctioned by its technical specifications, the staff noted its concern that "this maintenance practice poses a noteworthy risk." Memorandum from J. Johnson, Chief, Reactor Projects Branch No. 3, Region I, to R. Wessman, Directorate I-3, NRR (April 6, 1990), Enclosure to Attachment 2.

3. The Existence of the Vernon Tie-Line Would Not Compensate for the Disabled Diesel Generator Under GDC 17.

Vermont Yankee attempts to satisfy the no significant hazards standard by arguing that there will be no significant change in the types of potential accidents at VYNPS or decrease in the margin of safety of the plant, "because of the availability of other plant electrical systems, including the Vernon tie line" from a local hydropower station. Murphy letter at 5. However, this argument ignores GDC 17, which provides quite clearly that offsite power sources, such as the Vernon tie line, cannot be used as substitutes for onsite power sources in order to satisfy the requirements for backup power supply.

Moreover, even if GDC 17 could be ignored, and the Vernon tie line could be credited as a backup electricity supply, far too many questions exist about the capacity and reliability of the Vernon tie line as a source of backup power to safety systems. For instance, as Vermont Yankee has conceded, it is impossible to test the Vernon tie-line under a full station blackout load. BVY 92-94, Letter from Leonard A. Tremblay, Jr., Vermont Yankee, to United States Nuclear Regulatory Commission, re: 10CFR50.63 Station Blackout (SBO) - Response to NRC Request for Additional Information, Attachment to BVY 92-94 at 3 (July 31, 1992), Attachment 6. Moreover, Vermont Yankee admits that "[d]ue to the vintage of the hydro station generators' voltage regulators," it is unable to "analytically predict" what the voltage levels will be upon application of the largest load to the 4160-volt emergency bus. Id. at 3. Instead, Vermont Yankee

relies on the engineering judgment of hydro operators and dispatchers from outside Vermont Yankee, who are not licensed by NRC and who have no responsibility for the safety of VYNPS. In sum, Vermont Yankee has neither empirical evidence nor analytical results to demonstrate that the Vernon tie line has "sufficient capacity and capability" to meet the requirements of GDC 17. Accordingly, the existence of the Vernon tie-line provides no basis for a no significant hazards finding in this case.

CONCLUSION

Vermont Yankee has failed to demonstrate that the proposed license amendment involves no significant hazards considerations; in fact, on its face, it would significantly increase the risk to public health and safety posed by operation of the VYNPS. Accordingly, the NRC should reverse its proposed finding of no significant hazards considerations, and order a prior hearing on the proposed license amendment.

Respectfully submitted,

Diane Curran
HARMON, CURRAN, GALLAGHER & SPIELBERG
2001 "S" Street N.W.
Washington, D.C. 20009
(202) 328-3500

Counsel to NECNP

February 22, 1993

Attachment 1

UNITED STATES OF AMERICA
BEFORE THE NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
Vermont Yankee Nuclear Power Corporation	)	Docket No. 50-271-OLA
(Vermont Yankee Nuclear Power Station)	)	

AFFIDAVIT OF ROBERT D. POLLARD

I, Robert D. Pollard, do make oath and say:

1) My name is Robert D. Pollard. Since February 1976, I have been employed as a nuclear safety engineer by the Union of Concerned Scientists. My business address is 1616 P Street, N.W., Washington, D.C. 20036. Previously, I was employed by the United States Nuclear Regulatory Commission as a Licensing Project Manager for commercial nuclear power plants.

2) In May 1959, I enlisted in the United States Navy and was selected to serve as an electronics technician in the nuclear power program. After completing the required training, I became an instructor responsible for teaching naval personnel both the theoretical and practical aspects of operation, maintenance and repair for nuclear propulsion plants. From February 1964 to April 1965, I served as the senior reactor operator, supervising the reactor control division aboard the U.S.S. Sargo, a nuclear-powered submarine. In May 1965, I was honorably discharged from the U.S. Navy and attended Syracuse University, where I received the degree of Bachelor of Science magna cum laude in electrical engineering in June 1969.

3) In July 1969, I was hired by the United States Atomic Energy Commission (AEC) and continued as a technical expert with the AEC and its successor, the United States Nuclear Regulatory Commission (NRC) until February 1976. After joining the AEC, I completed a year of graduate studies in advanced electrical and nuclear engineering at the Graduate School of the University of New Mexico in Albuquerque. I subsequently advanced to the positions of Reactor Engineer (Instrumentation) and Project Manager with AEC/NRC. As a Reactor Engineer, I was primarily responsible for performing detailed technical reviews analyzing and evaluating the adequacy of the design reactor protection systems, control systems and emergency electrical power systems in proposed nuclear facilities. In September 1974, I was promoted to the position of Project Manager and became responsible for safety reviews of applications for licenses to construct and operate several commercial power plants.

4) In the course of my six and a half years with the AEC and NRC, I performed technical reviews, analyses and evaluations of designs of systems and components necessary for safe operation of reactor facilities under normal, abnormal and emergency conditions for the purpose of determining whether such systems complied with NRC rules and provided an acceptable level of safety for the public.

5) For the past fifteen years, I, along with other members of the Union of Concerned Scientists' professional staff, have conducted numerous studies pertaining to the safety and reliability of nuclear power plants, both on a generic and plant-specific basis. I have provided technical analysis for UCS's participation in rulemaking proceedings before the Nuclear Regulatory Commission and for UCS's litigation against the NRC for failure to fulfill its responsibilities under the Atomic Energy Act. I testified before the President's Commission on the Accident at Three Mile Island which investigated that 1979 accident. I participated as an expert witness in the NRC's adjudicatory proceeding on matters pertaining to reactor safety before numerous committees of the United States Congress and various other state and local legislative and administrative bodies. Thus, my 23 years of professional experience on the technical staffs of the AEC, NRC, and UCS have given me first-hand knowledge of NRC regulations and how they are developed, administered, and interpreted.

6) I have reviewed all of the documents referenced in New England Coalition on Nuclear Pollution's Comments in Opposition to Proposed Finding of No Significant Hazards Consideration (February 22, 1993). I am also familiar with NRC regulations and regulatory guidance governing the design and operability of diesel generators.

7) The factual statements made in the attached New England Coalition on Nuclear Pollution's Comments in Opposition to Proposed Finding of No Significant Hazards Consideration are true and correct to the best of my knowledge and belief.

_____
Robert D. Pollard

Subscribed and sworn to before me this __ day of February, 1993.

_____
Notary Public

My Commission expires _____.

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

Attachment 2

MAY 18 1990

MEMORANDUM FOR: Thomas T. Martin
Regional Administrator, Region I

FROM: Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

SUBJECT: USING THE OUTAGE TIME ALLOWED BY THE LIMITING CONDITION FOR OPERATION FOR OVERHAULING AN EMERGENCY DIESEL GENERATOR WITH THE PLANT OPERATING AT FULL POWER

I share the concern you expressed in your May 2, 1990 note (enclosure) to me regarding intentional entry into an LCO (limiting condition for operation) action statement in Mode 1 to overhaul a diesel generator. This concern relates to the broader issue of routine entry into LCOs to perform preventive maintenance, which appears to be a common practice among licensees. In the case of Vermont Yankee, certain design features and licensee commitments led the staff to conclude that an acceptable level of safety would be maintained while the licensee was overhauling the diesel generator at power. The question is whether it is acceptable for licensees whose plants have a less forgiving design to do the same. The staff does not want to discourage licensees from doing preventive maintenance at power, because of the potential for achieving better reliability; but it should be done in a manner that decreases overall plant risk.

The NRR staff is considering the issue of routine entry into LCO action statements for performing preventive maintenance. Diesel generator overhaul will, of course, be addressed.

In the interim, it may be appropriate for the regions to identify licensees that routinely overhaul diesel generators in Mode 1, and determine if they have evaluated the adequacy of the technical bases for doing so. Licensees that do this should adhere to the following conservative principles:

(1) The practice should represent a net safety benefit and be warranted by operational necessity, not just by convenience.

(2) The practice should not be abused by repeated entry into and exit from the LCO.

(3) The removal from service of safety systems and important non-safety equipment should be minimized during the overhaul, including offsite power sources.

(4) Any component testing or maintenance that increases the likelihood of a plant transient should be avoided; plant operation should be stable during the overhaul. (This could include consideration of degraded or out-of-service balance of plant equipment.)

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There may be other steps beyond these that licensees can take to minimize the risk associated with removing a diesel generator from service for an extended period of time.

NRR generally accepts the practice of licensees performing preventive maintenance at power, and this includes diesel generator overhauls, but only after careful planning and if the safety benefit is clear.

Original signed by
Thomas E. Murley

Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: S. D. Ebneter, RII
A. B. Davis, RIII
R. D. Martin, RIV
J. E. Martin, RV

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*(See previous concurrence)

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Enclosure

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

May 2, 1990

NOTE FOR: Tom Murley
Frank Miraglia
Bill Russell

SUBJECT: VERMONT YANKEE

Attached is correspondence I discussed on May 1, 1990 regarding the propriety of Vermont Yankee's practice of using 7-day LCO to overhaul diesel generators. Your staff gave me a supportable legal answer. Given VY's claim that others do the same, should NRC discourage this practice as a matter of policy in light of the DG's key role in accident mitigation?

Tim

Enclosures:
1. Memo dtd 4/13/90 J. Johnson fm R. Wessman
2. Memo dtd 4/6/90 R. Wessman fm F. Rosa
3. Memo dtd 4/6/90 R. Wessman fm J. Johnson

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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APR 06 1990

MEMORANDUM FOR: R. Hessman, Director, Project Directorate I-3, NRR

FROM: J. Johnson, Chief, Reactor Projects Branch No. 3, Region I

SUBJECT: VERMONT YANKEE PLANS TO OVERHAUL AN EMERGENCY DIESEL GENERATOR WHILE AT FULL POWER

The purpose of this memorandum is to followup on our discussion of March 30, 1990 and to request that NRR evaluate the appropriateness of Vermont Yankee's plans to overhaul one of the two diesel generators while the plant is operating at full power. The diesel generator vendor initially recommended the overhaul every 12-18 months, but has since stated that a 22-24 month interval is acceptable. As of April, 1990, the overhaul interval for this diesel generator is 22 months; the interval will be extended to 27 months if the overhaul is delayed to the next refueling outage.

Although TS 3.5.H.1 allows a 7 day LCO for one diesel generator out-of-service and this time period is apparently sufficient to perform the overhaul, we question whether the removal of such an important piece of safety-related equipment is prudent when the plant is at power. While we note that Vermont Yankee has surveyed several utilities and found that this practice was not unique and that the bases of their TS do not indicate that this action is unacceptable, we remained concerned that this maintenance practice poses a noteworthy risk. The diesel generator will probably not be in a condition during the overhaul to be quickly restored to service should a loss of offsite power occur.

We request that you review this issue for a generic NRR position on this matter. A position was taken by NRR in 1987 regarding willful entry into Standard Technical Specification 3.0.3 for one hour LCOs with redundant equipment out-of-service, but that position is not considered applicable here. We would appreciate a prompt response to this matter because Vermont Yankee intends to enter this LCO on or about April 16, 1990. If this practice is deemed unacceptable, we need to contact Vermont Yankee management promptly.

Sincerely,

Jon R. Johnson

Jon Johnson, Chief
Reactor Projects Branch 3

cc:
B. Boger, NRR
W. Kane, RI
W. Pasciak, RI
J. Wiggins, RI
H. Eichenholz, SRI, Vermont Yankee
J. Durr, RI
R. Gallo, RI
R. Barkley, RI

xA

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D C 20555

APR 6 1990

MEMORANDUM FOR: R. Wessman, Project Director
Project Directorate I-3
Division of Reactor Projects I/II

FROM: Faust Rosa, Chief
Electrical Systems Branch
Division of Systems Technology

SUBJECT: VERMONT YANKEE - PLANS TO OVERHAUL AN EMERGENCY DIESEL GENERATOR WHILE AT FULL POWER

In response to a memorandum (undated, received 4/5/90) from J. Johnson, Chief, Reactor Projects Branch No. 3, Region I to R. Wessman, Director, Project Directorate I-3, NRR which requested NRR to review Vermont Yankee's (VY) plans to declare a seven day LCO to overhaul an emergency diesel generator (EDG) while at full power, the Electrical Systems Branch (SELB) has reviewed VY's emergency electrical distribution system for its adequacy in the context of this planned LCO. Our evaluation follows:

Our position on the subject matter is based on the following information:

1. According to VY's current Technical Specification (TS) 3.5.H.1, if one of the two EDGs found to be inoperable, continued reactor operation is permitted for seven days, i.e., seven days Limiting Conditions for Operation (LCO).

2. In addition to two onsite EDGs and four offsite power lines through two startup transformers at VY, there is Vernon hydro station tie line which is a dedicated line (one half mile away) that can be connected directly to either of the emergency buses from the VY control room. This switching operation is covered by the current plant procedures and operator training. This line has enough capacity to supply all the emergency power loads to safely shutdown the plant.

3. The hydro station is energized continuously, therefore, there is no need to startup any equipment; and it has excellent reliability demonstrated by having a history of only two unplanned outages (total of less than 3 hours) since 1965.

Contact:
P. Kang, SELB/DST
X20812

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4. To ensure more reliability VY has committed to set up a preventive maintenance program which includes inspection of the line regularly and testing the line every other refueling by aligning it to one of the safety buses and supplying it with the needed power.

5. We also agree with VY's survey that this practice (i.e., overhauling or performing 18 month EDG surveillance during power operation) by declaring a seven day LCO is not unique to VY. We find that such practice is necessary for those multi-unit plants which are designed and operated with shared EDG configurations (e.g., Brunswick).

Based on the fact that the current VY's TS allows a seven day LCO for an inoperable EDG, this time period is apparently sufficient to perform the overhaul. At Brunswick for this case, the remaining three available EDGs would meet the single failure criterion for loss of offsite power safe shutdown but not for a DBA. The VY situation is exactly similar when the Vernon hydro is credited as being equivalent to a standby EDG.

Therefore we see no significant safety problem with VY's plans to overhaul an EDG during a seven day LCO while at full power.

Faust Rosa, Chief
Electrical Systems Branch
Division of Systems Technology

cc: A. Thadani
M. Fairtile
J. Knight

VERMONT YANKEE
NUCLEAR POWER CORPORATION

Ferry Road, Brattleboro, VT 05301-7002

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Attachment 3

December 15, 1992
BVY 92-139

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

References:
(a) License No. DPR-28 (Docket No. 50-271)
(b) Letter, VYNPC to USNRC, BVY 92-068, dated June 3, 1992
(c) Letter, USNRC to VYNPC, NVY 92-095, dated June 4, 1992
(d) Letter, VYNPC to USNRC, BVY 92-074, dated June 29, 1992
(e) Letter, USNRC to VYNPC, NVY 92-127, dated July 1, 1992

Subject: **Proposed Change No. 166, One-Time Extended Emergency Diesel Generator (EDG) LCO Period to Support Maintenance Activities**

Dear Sir:

Pursuant to Section 50.59 of the Commission's Rules and Regulations, Vermont Yankee hereby proposes the following changes to Appendix A of the Operating License [Reference (a)].

Proposed Change

This request proposes to replace Page 94 of the Vermont Yankee Technical Specifications with the attached revised Page 94. Section 3.5.H.1 on Page 94 presently stipulates a Limiting Condition for Operation of seven (7) days with one Emergency Diesel Generator out of service. This request proposes to change Section 3.5.H.1 by allowing a one-time extension of the seven (7) day LCO to fourteen (14) days during the current operating cycle (Cycle 16) to permit extensive maintenance to be performed on the "B" EDG while the reactor is at power.

NRC approval of this proposed change would allow continued reactor operation for an additional seven days beyond the present seven day LCO period (14 days total) for a one-time cylinder liner replacement and routine preventive maintenance activities on the "B" EDG during the present power cycle (Cycle 16). The extension period will allow sufficient time to perform the planned maintenance activity and to thoroughly test the "B" EDG before returning it to service.

Reason for Change

On May 28, 1992, and again on June 23, 1992, the "A" EDG was declared inoperable. In each of these cases, during a routine monthly EDG surveillance, abnormalities were encountered with the jacket cooling system. Upon engine disassembly, cracks were discovered in two (2) cylinder liners. For each of these occurrences, Vermont Yankee requested a temporary waiver of compliance [References (b) and (d)] to extend the LCO period such that repairs and proper testing could be made at power prior to restoring the "A" EDG to service. Both of these requests were approved by NRC [References (c) and (e)]. In the second instance, the maintenance performed included replacement of all cylinder liners, on the "A" EDG, with new improved liners. The "A" EDG was returned to service within the extended LCO period and has since encountered no performance problem related to the cylinder liner replacement.

Following each of these occurrences, Vermont Yankee performed a detailed Root Cause Analysis (RCA) to investigate the cause of the specific failures. In addition, an EDG Task Force was assembled to review the overall EDG maintenance and surveillance programs. Both of these efforts have been completed and a number of recommendations have been made to management. Vermont Yankee has already implemented some of the recommendations and is in the process of implementing the remainder. One of the recommendations was to replace cylinder liners on the "B" EDG coincident with the next scheduled overhaul.

Surveillance testing of the "B" EDG has not revealed any indication of the cylinder liner problems that occurred on the "A" EDG. However, it is prudent to make the same improvements to the "B" EDG that have already been made to the "A" EDG at the earliest opportunity. As a result, Vermont Yankee plans to perform replacement of all cylinder liners during the next scheduled 18 month overhaul of the "B" EDG. During this maintenance period, we also plan to replace the "inverted 'Y' housing" as a result of Vermont Yankee experience with broken bolts on this component in 1992 and a Fairbanks-Morse Service Information Letter (SIL). In addition, we will be performing the preventative maintenance tasks normally associated with the scheduled 18 month overhaul of the "B" EDG.

Basis for Change

Fourteen (14) days are required to complete the maintenance associated with cylinder liner replacement, replacement of the "inverted 'Y' housing" and performance of the preventative maintenance tasks normally associated with the scheduled 18 month overhaul of the "B" EDG. The scheduled 18 month overhaul, including post-maintenance testing, typically requires most of the allowed 7-day EDG LCO period. The cylinder liner replacement on the "A" EDG conducted in June, including the required augmented testing, required more than the allowed 7-day LCO. The augmented testing that is planned prior to declaring the "B" EDG operable includes: operating the engine continuously for approximately twenty-one (21) hours at loads varying from "no load" to 100% load, allowing the EDG to cool down for a minimum of eight (8) hours, then performing an eight (8) hour operability run. The return of the "B" EDG to operable status would occur after successful completion of the first one (1) hour of the eight (8) hour operability run. This testing would be conducted with careful monitoring of key diesel engine parameters to further substantiate satisfactory operation.

In order to perform this extensive preventative maintenance effort and the additional task of replacing the cylinder liners, including special testing, additional time is needed beyond the existing seven (7) day LCO period provided in Technical Specifications. Therefore, Vermont Yankee is requesting a one-time extension of the present seven (7) day LCO to fourteen (14) days to allow for implementation of these improvements during the current power cycle (Cycle 16).

We believe that approval of a seven day LCO extension will provide sufficient margin to repair and thoroughly test the EDG without compromising the continued safe operation of the plant. As we indicated above, a significant portion of the additional LCO time would be for "run-in" of the new components and operability testing. The EDG would be available during this period, but not considered operable until testing has been satisfactorily completed.

Upon NRC approval of this proposed change, Vermont Yankee would then utilize the one time LCO extension for the express purpose of performing the "B" EDG maintenance activity, described herein, during Cycle 16 operation at power. Vermont Yankee is in the process of preparing the necessary procedures, schedules and procuring the parts and equipment necessary to perform this maintenance activity. It is anticipated that we will be in a position to perform this activity sometime within the first four months of 1993.

Regulatory Commission
ember 15, 1992
4

As required by Technical Specifications, the alternate EDG will be tested and ... of the Low Pressure Core Cooling and Containment Cooling Subsystems connected to the operable EDG will be verified operable prior to declaring the "B" EDG inoperable and entering the LCO period.

In addition, Vermont Yankee procedures require the Station Manager of the Vernon Hydro Station to be contacted to ensure that continued availability of power is expected on the dedicated tie-line to Vermont Yankee prior to and for the duration of the LCO period.

A thorough review of all other planned surveillance activities will be performed prior to entering the LCO period and only those determined to be of low risk to equipment or system availability will be allowed.

Safety Considerations

In order to provide added assurance that the "A" EDG will perform its function if required, the "A" EDG will be tested for operability prior to entering into the "B" EDG LCO period. The Technical Specifications also require that during the LCO period, all remaining Low Pressure Core Cooling and Containment Cooling Systems connected to the operable EDG remain operable. Vermont Yankee has developed a detailed LCO maintenance plan for EDG LCO maintenance. This plan has been successfully used during prior EDG LCO maintenance and will be invoked for this evolution as well. In addition, the Vernon Hydro Station dedicated tie-line, which historically has demonstrated a very high reliability, is required by Vermont Yankee procedure to be available to supply power to Emergency Bus 3 during the "B" EDG LCO. Any previously analyzed event postulated during the seven day extension period can be mitigated by the other available systems. The proposed LCO extension has no significant impact on the consequences of any previously analyzed event.

The proposed extension would allow the "B" EDG to remain inoperable for an additional seven days beyond the present seven day LCO allowed by Technical Specifications. The unavailability of one EDG is not a part of the initiation of any of the analyzed accidents. Therefore, the proposed change does not increase the probability of an accident previously evaluated.

This proposed change has been reviewed by the Vermont Yankee Plant Operations Review Committee and the Vermont Yankee Nuclear Safety Audit and Review Committee.

Significant Hazards Consideration

The standards used to arrive at a determination that a request for amendment involves no significant hazards consideration are included in the Commission's Regulations, 10CFR50.92, which state that operation of the facility in accordance with the proposed amendment would 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 the proposed change with respect to these three criteria and demonstrates that the proposed amendment involves no significant hazards consideration:

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The proposed change would not involve a significant increase in the probability or consequences of an accident previously evaluated. As discussed above, a seven day extension to an already existing seven day LCO period would involve no significant increase in the probability of occurrence or consequences of a design basis accident during the extension period.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change would not create the possibility of a new or different kind of accident from those previously evaluated. The proposed change would have no impact on the possibility of a new or different initiating event. The proposed change requests a one time extension of 7 days beyond the already authorized 7 day "B" EDG LCO. Any previously analyzed event postulated during the seven day extension period can be mitigated by the other available systems.

3. Does the change involve a significant reduction in a margin of safety?

   The proposed change would not involve a significant reduction in the margin of safety. As discussed above, approval of this request involves an insignificant reduction in the margin of safety because of the availability of other plant electrical systems, including the Vernon tie line, and the short duration of the extension period.

Based upon the above, Vermont Yankee concludes that the proposed change does not constitute a significant hazards consideration as defined in 10CFR50.92(c).

Schedule of Change

This proposed change will be incorporated into the Vermont Yankee Technical Specifications as soon as practicable following receipt of your approval.

Vermont Yankee plans to utilize the one-time extended LCO provision for the "B" EDG during the current power cycle (Cycle 16).

Vermont Yankee will keep the NRC Senior Resident Inspector informed of our progress in preparing for this maintenance activity and will notify the NRC Senior Resident Inspector in advance of entering this extended maintenance LCO.

We view the proposed activity as a positive contributor toward our mutual goal of maintaining a high degree of plant safety through improved equipment reliability. We trust that the information provided herein adequately supports our request, however, should you have any questions or should you need to discuss this matter further, please contact this office.

Very truly yours,

Vermont Yankee Nuclear Power Corporation

Warren P. Murphy
Senior Vice President, Operations

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

STATE OF VERMONT)
) SS
WINDHAM COUNTY)

Then personally appeared before me, Warren P. Murphy, who, being duly sworn, did state that he is Senior Vice President, Operations of Vermont Yankee Nuclear Power Corporation, that he is 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, 1995

3.5 LIMITING CONDITIONS FOR OPERATION

3. If the requirements of Specification 3.5.G cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to 120 psig within 24 hours.

H. Minimum Core and Containment Cooling System Availability

1. During any period when one of the standby diesel generators is inoperable, continued reactor operation is permissible only during the succeeding seven days, or the succeeding fourteen days for a one-time extended maintenance activity for the "B" standby diesel generator during Cycle 16, provided that all of the Low Pressure Core Cooling and Containment Cooling Subsystems connecting to the operable diesel generator shall be operable. If this requirement cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.

2. Any combination of inoperable components in the Core and Containment Cooling Systems shall not defeat the capability of the remaining operable components to fulfill the core and containment cooling functions.

3. When irradiated fuel is in the reactor vessel and the reactor is in the cold shutdown condition, all Core and Containment Cooling Subsystems may be inoperable provided no work is permitted which has the potential for draining the reactor vessel.

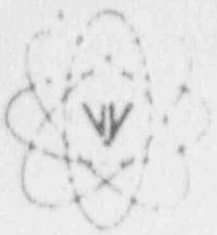
4.5 SURVEILLANCE REQUIREMENTS

H. Minimum Core and Containment Cooling System Availability

1. When one of the standby diesel generators is made or found to be inoperable, the remaining diesel generator shall have been or shall be demonstrated to be operable within 24 hours.

VERMONT YANKEE
NUCLEAR POWER CORPORATION

Attachment 4



Ferry Road, Brattleboro, VT 05301-7002

June 3, 1992
BVY 92-068

United States Nuclear Regulatory Commission
Region I Administrator
475 Allendale Road
King of Prussia,PA 19406

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) NRC Memorandum from T.E. Murley, Director, Office of Nuclear Reactor Regulation, "Temporary Waivers of Compliance", dated 2/22/90

Dear Sir:

Subject: **Request for Temporary Waiver of Compliance from Technical Specification LCO Requirements Pertaining to Emergency Diesel Generator**

The purpose of this letter is to document our request, in accordance with the guidance provided in Reference (b), for a temporary waiver of compliance from Technical Specification LCO requirements for Emergency Diesel Generator operability.

1. Requirements to be Waived:

Vermont Yankee Technical Specification 3.5.H.1 states the following:

During any period when one of the standby diesel generators is inoperable, continued reactor operation is permissible only during the succeeding seven days, provided that all of the Low Pressure Core Cooling and Containment Cooling Subsystems connecting to the operable diesel generator shall be operable. If this requirement cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.

Vermont Yankee is requesting relief from the 7-day Limiting Condition for Operation of Section 3.5.H.1 for a period of 1 additional day with an emergency diesel generator (EDG) inoperable. The waiver would extend the available time to replace engine components and thoroughly test the unit prior to a return to operable status.

2. Discussion of Circumstances

The "A" Emergency Diesel Generator was declared inoperable on May 28, 1992 at 1240 pm. During a routine monthly EDG surveillance, a problem was noted with the jacket coolant system and the EDG was therefore declared inoperable pending investigation into the cause of the abnormalities. Upon disassembly of the diesel engine, the #7 cylinder liner was found to have

A001

a crack. In addition, further inspection revealed plating damage of the liner and pitting damage of the upper piston in the #3 cylinder. These indications were in the combustion area and not in the piston wear ring area.

Both liners and the #3 piston will be replaced.

3. Compensatory Actions

As required by Technical Specifications, the alternate EDG was satisfactorily tested and all of the Low Pressure Core Cooling and Containment Cooling Subsystems connected to this operable EDG were verified as operable. Additionally, the Vernon Hydro Station was notified of this situation and the dedicated tie-line to Vermont Yankee was verified as being available. The Station Manager concurred with our request not to do anything that would jeopardize the tie-line availability as well as to notify Vermont Yankee of any change in the tie-line status.

It should be noted that use of the Vernon tie-line is addressed in operating procedures and operators are trained in its use.

A thorough review of all planned surveillance activities was conducted and only those determined to be of low risk will be allowed. Based upon the short duration of this request, additional alternate testing of the "B" EDG and its subsystems was considered, and determined not to be necessary.

4. Safety Significance and Potential Consequences

The proposed one day extension has no impact on the consequences of any previously analyzed event if off-site power remains available. The alternate EDG was tested for operability prior to requesting the one-day extension period. This gives assurance that the available EDG would function, if required. In addition, the Vernon tie-line, which has historically demonstrated a very high reliability, is available to supply power to the emergency bus. The requirements of the Technical Specifications also require that during the one-day extension period, all remaining Low Pressure Core Cooling and Containment Cooling systems connected to the operable EDG will remain operable. The proposed change would allow the "A" EDG to remain inoperable for one additional day. Any accident which could occur during this one-day period could have occurred in the previous seven-day period also. Therefore, the proposed change does not significantly increase the probability of an accident. Since this is an extension of only one day, the increased risk associated with an accident during this period is not significant. Probabilistic Risk Analysis has estimated that the impact on the expected core damage frequency would be changed by less than 1 percent during the additional one-day extension period.

5. Duration of Request

The proposed waiver of compliance is for one-time approval of reactor operation for up to eight (8) days with the EDG inoperable. The current Vermont Yankee Technical Specifications allow reactor operation for seven (7) days with the EDG inoperable. Vermont Yankee believes that the additional one day will provide sufficient margin to repair and thoroughly test the EDG without compromising the continued safe operation of the plant. It should be noted that a significant portion of the extra LCO time would be for "run-in" of the new components and operability testing. The EDG would be available during this period, but not considered operable.

6. Significant Hazards Consideration

Vermont Yankee has concluded that the request does not involve a significant hazards consideration in that the request would not:

(i) involve a significant increase in the probability or consequences of an accident previously evaluated. As discussed in section 4, a one (1) day extension to an already existing seven (7) day Limiting Condition for Operation would involve an insignificant increase in the probability of occurrence and consequences of a design basis accident during the extension period.

(ii) create the possibility of a new or different kind of accident from those previously evaluated. The proposed change can have no impact on the possibility of a new or different initiating event. Any previously analyzed event postulated during the one-day extension period can be mitigated by the systems powered by the Vernon tie-line.

(iii) involve a significant reduction in the margin of safety. As discussed above, approval of this request involves an insignificant reduction in the margin of safety because of the availability of other plant electrical systems and the short duration of the extension period. The change will have no significant impact on the consequences of any accident and will have no impact on any protective boundary.

In summary, the waiver of compliance would provide a non-recurring, one-time approval of reactor operation for up to an additional day with the "A" EDG inoperable. The waiver of compliance would extend the existing Technical Specification LCO through June 5, 1992 at 1240 pm. The waiver of compliance will allow an additional one day to repair components and thoroughly test the EDG prior to returning it to service.

The Vermont Yankee Plant Operations Review Committee (PORC) has reviewed this request for a temporary waiver of compliance and concurs with the determinations presented.

7. Environmental Consequences

No environmental consequences will result from approval of this request.

8. Notification of State

Vermont Yankee has notified the State of Vermont of the content of this request and has forwarded a copy of this document to the Vermont State Nuclear Engineer.

It is our understanding that this request for a one-day temporary waiver of compliance has been authorized by telecon on June 3, 1992 by James C. Linville (USNRC) to Donald A. Reid (VYNPC).

We trust that the information provided adequately supports our request; however should you have any questions regarding this matter, please contact this office.

Very truly yours,

Vermont Yankee Nuclear Power Corporation

Warren P. Murphy
Senior Vice President, Operations

cc: USNRC Document Control Desk
USNRC Director, NRR
USNRC Director, Reactor Projects, NRR
USNRC Director, Office of Enforcement
USNRC Technical Assistant, Reactor Projects, NRR
USNRC Resident Inspector (VYNPC)
USNRC Project Manager, NRR
VT Department of Public Service

Attachment 5

VERMONT YANKEE
NUCLEAR POWER CORPORATION

Ferry Road, Brattleboro, VT 05301-7002

BVY 92-074
REPLY TO
ENGINEERING OFFICE
580 MAIN STREET
BOLTON, MA 01740
(508) 779-6711

June 29, 1992

United States Nuclear Regulatory Commission
Regional I
475 Allendale Road
King of Prussia, PA 19406

Attn: Regional Administrator

References: a) License No. DPR-28 (Docket No. 50-271)
b) NRC Memorandum from T.E. Murley, Director, Office of Nuclear Reactor Regulation, "Temporary Waivers of Compliance", dated 2/22/90

Dear Sir:

Subject: Request for Temporary Waiver of Compliance from Technical Specification LCO Requirements Pertaining to Emergency Diesel Generator

The purpose of this letter is to document our request, in accordance with the guidance provided in Reference b), for a temporary waiver of compliance from Technical Specification LCO requirements for Emergency Diesel Generator operability.

1. Requirements to be Waived:

Vermont Yankee Technical Specification 3.5.H.1 states:

> During any period when one of the standby diesel generators is inoperable, continued reactor operation is permissible only during the succeeding seven days, provided that all of the Low Pressure Core Cooling and Containment Cooling Subsystems connecting to the operable diesel generator shall be operable. If this requirement cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the cold shutdown condition within 24 hours.

Vermont Yankee is requesting relief from the 7-day Limiting Condition for Operation of Section 3.5.H.1 for a period of 48 additional hours with an emergency diesel generator (EDG) inoperable. The waiver would extend the available time to replace engine components and thoroughly test the unit prior to a return to operable status.

2. Discussion of Circumstances

The "A" Emergency Diesel Generator was declared inoperable on June 23, 1992 at 0457 a.m. During a routine monthly EDG surveillance, the engine tripped approximately 90 minutes into its scheduled 8-hour run from low jacket cooling system pressure.

Due to extensive rework earlier in June to troubleshoot and replace two cylinder liners, leaking cylinder adapters were considered suspect. After an investigation of torque values for adapters, lapping of cylinder liner sealing surfaces and installation of new gaskets, hydro tests of the jacket cooling system failed repeatedly. At this point, cylinder integrity was suspect and it was found that the #10 cylinder was leaking. A crack was discovered that originates in the threaded adapter connection in the cylinder liner.

Vermont Yankee determined that the most conservative approach to the repair of this diesel engine was to replace eleven of the twelve cylinder liners with new improved liners. The twelfth liner in cylinder #3 was replaced a month ago.

3. Compensatory Actions

As required by Technical Specifications, the alternate EDG was satisfactorily tested and all of the Low Pressure Core Cooling and Containment Cooling Subsystems connected to this operable EDG were verified as operable. Additionally, the Vernon Hydro Station was notified of this situation and the dedicated tie-line to Vermont Yankee was verified as being available. The Station Manager concurred with our request not to do anything that would jeopardize the tie-line availability as well as to notify Vermont Yankee of any change in the tie-line status.

It should be noted that use of the Vernon tie-line is addressed in operating procedures and operators are trained in its use.

A thorough review of all planned surveillance activities was conducted and only those determined to be of low risk will be allowed. Based upon the short duration of this request, additional alternate testing of the "B" EDG and its subsystems was considered, and determined not to be necessary.

4. Safety Significance and Potential Consequences

The proposed 48 hour extension has no impact on the consequences of any previously analyzed event if off-site power remains available. The alternate EDG was tested for operability prior to requesting the 48 hour extension period. This gives assurance that the available EDG would function, if required. In addition, the Vernon tie-line, which has historically demonstrated a very high reliability, is available to supply power to the emergency bus. The requirements of the Technical Specifications also require that during the LCO period, all remaining Low Pressure Core Cooling and Containment Cooling systems connected to the operable EDG will remain operable. The proposed extension would allow the "A" EDG to remain inoperable for 48 additional hours. Any accident which could occur during this 48 hour period could have occurred in the previous seven-day period also. Therefore, the proposed change does not significantly increase the probability of an accident. Since this is an extension of only 48 hours, the increased risk associated with an accident during this period is not significant.

5. Duration of Request

The proposed waiver of compliance is for approval of reactor operation for up to nine (9) days with the EDG inoperable. The current Vermont Yankee Technical Specifications allow reactor operation for seven (7) days with the EDG inoperable. Vermont Yankee believes that the additional 48 hours will provide sufficient margin to repair and thoroughly test the EDG without compromising the continued safe operation of the plant. It should be noted that a significant portion of the extra LCO time would be for "run-in" of the new components and operability testing. The EDG would be available during this period, but not considered operable.

Following approximately nine (9) hours of continuous operation at 70, 75, 87.5 and 100% load, it is our intent to allow the EDG to cooldown for a minimum of twelve (12) hours. The return of the "A" EDG to operable status would then occur after a successful eight (8) hour operability run. Following restoration of the "A" diesel generator to operable status it is our intent to conduct an additional surveillance test of the "A" diesel generator within one week. This testing would be conducted with careful monitoring of key diesel engine parameters to further substantiate satisfactory operation. Additionally, if any significant, related problems are discovered during these test periods, such that the jacket cooling system problems do not appear to be corrected, an orderly shutdown of the plant would be initiated.

The "B" EDG will also be tested for eight hours, after declaring the "A" EDG operable, per the normal monthly surveillance procedure.

6. Significant Hazards Consideration

Vermont Yankee has concluded that the request does not involve a significant hazards consideration in that the request would not:

(i) involve a significant increase in the probability or consequences of an accident previously evaluated. As discussed in section 4, a 48 hour extension to an already existing seven (7) day Limiting Condition for Operation would involve an insignificant increase in the probability of occurrence and consequences of a design basis accident during the extension period.

(ii) create the possibility of a new or different kind of accident from those previously evaluated. The proposed change can have no impact on the possibility of a new or different initiating event. Any previously analyzed event postulated during the 48 hour extension period can be mitigated by the systems powered by the Vernon tie-line.

(iii) involve a significant reduction in the margin of safety. As discussed above, approval of this request involves an insignificant reduction in the margin of safety because of the availability of other plant electrical systems and the short duration of the extension period.

In summary, the waiver of compliance would provide approval of reactor operation for up to an additional 48 hours with the "A" EDG inoperable. The waiver of compliance would extend the existing Technical Specification LCO through July 2, 1992 at 0457 am. The waiver of compliance will allow additional 48 hours to repair components and thoroughly test the EDG prior to returning it to service.

The Vermont Yankee Plant Operations Review Committee (PORC) and Nuclear Safety Audit and Review Committee (NSARC) have reviewed this request for a temporary waiver of compliance and concur with the determinations presented.

7. Environmental Consequences

No environmental consequences will result from approval of this request.

8. Notification of State

Vermont Yankee has notified the State of Vermont of the content of this request and has forwarded a copy of this document to the Vermont State Nuclear Engineer.

It is our understanding that this request for a 48 hour temporary waiver of compliance has been authorized by telecon on June 29, 1992 by James C. Linville (USNRC) to Donald A. Reid (VYNPC).

We trust that the information provided adequately supports our request; however should you have any questions regarding this matter, please contact this office.

Very truly yours,

Vermont Yankee Nuclear Power Corporation

Warren P. Murphy
Senior Vice President, Operations

WPM/dm
cc: USNRC Document Control Desk
USNRC Director, NRR
USNRC Director, Reactor Projects, NRR
USNRC Director, Office of Enforcement
USNRC Technical Assistant, Reactor Projects, NRR
USNRC Resident Inspector, VYNPS
USNRC Project Manager, VYNPS
VT Department of Public Service

Attachment 6

VERMONT YANKEE
NUCLEAR POWER CORPORATION

Ferry Road, Brattleboro, VT 05301-7002

July 31, 1992
BVY 92 - 94

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 (Thadani) to NUMARC (Rasin), "Approval of NUMARC Documentation Station Blackout", dated October 7, 1988
c. Letter, VYNPC to USNRC, BVY 89-36, dated April 12, 1989
d. NUMARC 87-00 "Supplemental Questions and Answers", dated December 27, 1989
e. NUMARC 87-00 "Major Assumptions", dated December 27, 1989
f. NUMARC letter, "Station Blackout (SBO) Implementation: Request for Supplemental SBO Submittal to NRC", dated January 4, 1990
g. Letter, USNRC (Thadani) to NUMARC (Marion), dated January 3, 1990
h. Letter, VYNPC to USNRC, BVY 90-38, dated March 30, 1990
i. Letter, VYNPC to USNRC, BVY 91-21, dated February 28, 1991
j. Letter, USNRC to VYNPC, NVY 91-98, dated June 5, 1991
k. Letter, VYNPC to USNRC, BVY 91-69, dated July 17, 1991
l. Letter, VYNPC to USNRC, BVY 91-88, dated October 1, 1991
m. Letter, USNRC to VYNPC, NVY 92-16, dated February 21, 1992

Subject: 10CFR50.63 Station Blackout (SBO) - Response to NRC Request for Additional Information

Dear Sir:

By letter dated February 21, 1992 [Reference (m)], NRC transmitted to Vermont Yankee a list of questions concerning the availability of the Vernon Hydro Station. Answers to these questions are considered necessary for NRC to complete the SBO review for Vermont Yankee.

Attached please find Vermont Yankee's response to Reference (m). Should you have any further questions, please contact this office.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

Leonard A. Tremblay, Jr.
Senior Licensing Engineer

9208050033

Attachment
cc: USNRC Region 1 Administrator
USNRC Resident Inspector - VYNPS

Question No. 1

What provisions are in place or will be put in place to alert the Vermont Yankee nuclear operators if at least 2.3 MW of Vernon Hydro is not available, or could not be made available (within 10 minutes) upon demand?

Response

The FERC operating license for the hydro station requires a minimum river flow of 1250 cfs. This 1250 cfs flow, if passed through the turbine-generator wheels, corresponds to an average electrical output of 3.5 MW available to Vermont Yankee. Since the maximum safe shutdown load requirement for Vermont Yankee is 2.3 MW, it is clear that the hydro station always has sufficient capacity to supply all loads required for a Station Blackout event under these conditions. New England Power has reconfirmed the operating directive requiring a minimum flow of 1250 cfs be directed through the water wheels, thus assuring 3.5 MW is available to Vermont Yankee.

Vermont Yankee and the Vernon Hydro station have a mutual understanding, recently confirmed with Vernon Hydro station management, that Vermont Yankee will be notified of an anticipated unavailability of the tie line that supplies Vermont Yankee from Vernon Hydro. It is a long-standing, customary practice for Vermont Yankee, Vernon Hydro station, and all other electrical suppliers on the grid to notify individuals that may be affected prior to any planned switching, connection, or disconnection of electrical supply; changes in the availability of the tie line with Vermont Yankee would be no exception. In addition, Vermont Yankee operators monitor tie line voltage and Vernon Hydro total power output in the control room. These provide information regarding the loss of voltage on the tie line, and the loss of hydro station generator output for any reason. Even in the rare instance where the Vernon Hydro power output is zero, power can still be provided by the separate 69-kV grid through the Vernon Hydro tie line to Vermont Yankee.

The tie line between the Vernon Hydro station and Vermont Yankee is normally energized, and the breaker to control connection of the tie line to emergency buses is under Vermont Yankee control. Connection of Vernon Hydro power to Vermont Yankee emergency buses can be made directly from the Vermont Yankee control room.

Question No. 2

If a LOOP and subsequent SBO at the nuclear plant is due to an extensive grid failure which results in the separation of the hydro generation from the grid, what steps and how much time (realistically under these conditions) would be required by the nuclear plant operators and the operators at the hydro plant to re-energize the line to the nuclear plant (with required KW available), assuming (1) that the pre-existing hydro plant load does not completely separate from the hydro generation (ie. the load equals the hydro generation), and (2) that the pre-existing load separates from the hydro generation?

Response

In addressing Station Blackout requirements, Vermont Yankee considered a loss of the 345-kV and 115-kV lines, which constitute the normal offsite power supply. The Vernon Hydro station connects to the 69-kV system, and is not considered a normal source of offsite power to Vermont Yankee. It is extremely unlikely for common mode failure of Vernon Hydro and Vermont Yankee's offsite and onsite power to occur. Vernon Hydro station generators are not normally connected the Vermont Yankee emergency buses; the equipment is of different manufacturer; the equipment is maintained and operated by a separate organization. Vernon Hydro is connected to a 69-kV transmission system which is not directly electrically connected to Vermont Yankee's offsite power sources, thus providing electrical independence and minimizing the potential for common cause failure due to electrical faults, switching problems, or other grid related losses of power. The hydro station is connected to its own switchyard which is physically separated from Vermont Yankee's switchyard (approximately 1 mile), and the transmission lines emanating from the station are routed on separate rights of way. The majority of the lines emanating from the hydro station are routed in completely different directions from the lines supplying offsite power to Vermont Yankee.

While the tie line from Vernon Hydro to Vermont Yankee is normally energized, Vermont Yankee does not constitute a normal (pre-existing) load for the hydro station. Since hydro station house loads are inconsequential, the only pre-existing loads are grid loads. In the highly unlikely event of a regional blackout, the hydro station would separate from the grid. Vernon Hydro station has the capability to black start, and provide power to Vermont Yankee within an hour. Vermont Yankee is considered a priority load in accordance with Vernon Hydro Station Operating Rules.

Question No. 3

After the AAC source is connected to the safety bus at the nuclear plant, how will the loads be sequenced on (manually or automatically, kWs versus time)? For this loading sequence, and assuming a LOOP and SBO as described above and minimum pre-existing hydro generation, what tests have been or will be made per 10 CFR 50.63(a)(2) (*sic*) to assure that there will be adequate voltage and power availability at the Vermont Yankee safety bus? Provide a description of the tests and any supporting analysis including results if available, or provide the descriptions and a schedule for implementation.

Response

As discussed in our submittal BVY 91-69, dated July 17, 1991, the automatically sequenced loads for either emergency bus are less than 600KW. The remaining loads will be manually sequenced on in accordance with Vermont Yankee's LNP Procedure No. OT-3122. Tests of the Vernon Hydro line are conducted in accordance with Vermont Yankee Procedure No. OP 4142, "Vernon Tie Surveillance." Plant mode, system operating configuration, and circuit breaker interlocks make it physically impossible to conduct these tests at the full 2.3 MW load anticipated during a station blackout. Vermont Yankee is evaluating hardware changes that would allow testing at full SBO load. However, there are no plans to perform increased load testing until the tie line is modified in conjunction with the Vernon Hydro station upgrade, at which time testing will be readdressed. (Also, tests required by 10 CFR 50.63(c)(2) relate to time, not capacity.)

Our preliminary load flow analysis shows, for conservatively assumed initial loads, that adequate voltage and power can be made available to the 4160-volt and 480-volt emergency buses. Due to the vintage of the hydro station generators' voltage regulators, we cannot at this time analytically predict what the voltage levels will be upon application of the largest load to the 4160-volt bus. However, engineering personnel from hydro operations and from central dispatching who are familiar with the operation and responsiveness of the hydro generators, are confident that these units can power the largest Vermont Yankee load. Additionally, as discussed in our submittal BVY 91-69, Vermont Yankee will be implementing a design change to upgrade the tie line from Vernon Hydro. This is scheduled to coincide with the hydro station upgrade. With this equipment in place, we will be able to analytically show adequate voltage and power availability for all Vermont Yankee loads.