

VERMONT YANKEE NUCLEAR POWER CORPORATION

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November 27, 2000
BVY 00-107

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

**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
Technical Specification Proposed Change No. 242
Elimination of 24 Vdc ECCS Instrumentation Batteries**

Pursuant to 10CFR50.90, Vermont Yankee (VY) hereby proposes to amend its Facility Operating License, DPR-28, by incorporating the attached proposed change into the VY Technical Specifications. This change eliminates the specifications associated with the 24 Vdc Emergency Core Cooling System (ECCS) instrumentation batteries and chargers. A design change is in development that will transfer the 24 Vdc ECCS instrumentation loads to the 125 Vdc main station batteries.

Attachment 1 to this letter contains supporting information and the safety assessment of the proposed change. Attachment 2 contains the determination of no significant hazards consideration. Attachment 3 provides the marked-up version of the current Technical Specification and Bases pages showing the changes requested. Attachment 4 is the re-typed Technical Specification and Bases pages.

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

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

Upon acceptance of this proposed change by the NRC, VY requests that a license amendment be issued by April 1, 2001 for implementation within 60 days of its effective date, to coincide with our scheduled design change implementation.

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

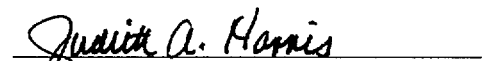
Sincerely,

VERMONT YANKEE NUCLEAR POWER CORPORATION


Michael A. Balduzzi
Vice President, Operations

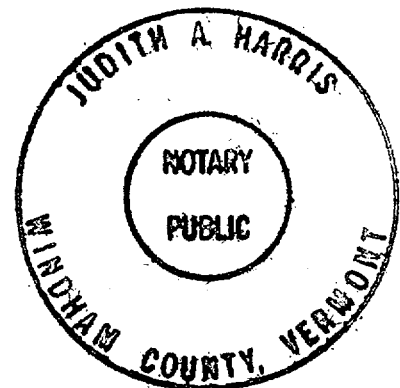
STATE OF VERMONT)
)ss
WINDHAM COUNTY)

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


Judith A. Harris, Notary Public
My Commission Expires February 10, 2003

Attachments

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



Docket No. 50-271
BVY 00-107

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 242

Elimination of 24 Vdc ECCS Instrumentation Batteries

Supporting Information and Safety Assessment of Proposed Change

INTRODUCTION

The purpose of this proposed change is to eliminate the Vermont Yankee (VY) 24 Vdc ECCS Instrumentation Battery System Technical Specifications (TS).

Specifically, the following sections will be affected:

Page 213 - TS 3.10.A.2.d will be deleted. Additionally, reference to ECCS batteries will be deleted from TS 4.10.A.2.c and d.

Page 216 – TS 3.10.B.2.c will be deleted.

Page 221a – TS Bases 3.10.B will be revised to delete discussion of ECCS Instrumentation Batteries.

Page 222 – TS Bases 4.10.B will be revised to delete reference to the ECCS batteries.

BACKGROUND

The safety objective of the 24 Vdc ECCS power system is to provide a supply of 24 Vdc power for operation of the ECCS Analog Trip System. The 24 Vdc ECCS power system was originally added to the station distribution system by design change (EDCR 79-2) to serve as a power source for the ECCS Analog Trip System. The additional equipment was added because, at the time of installation, it was felt that the added load of the Analog Trip System would reduce the spare capacity in the 125 Vdc Main Station Battery System to an undesirable level. There are two redundant and independent 24 Vdc ECCS systems, each consisting of a battery, a battery charger, and a distribution panel. A third, standby charger can be connected to substitute for the B System charger to meet Appendix R, Alternate Shutdown criteria. The standby charger is not environmentally qualified and is not credited in existing Technical Specifications as an available charger for the 24 Vdc ECCS system. A single-cell charging system can also be connected for equalize charging of individual cells on either ECCS battery. VY FSAR section 8.8 contains a more detailed description of the 24 Vdc ECCS power system.

A design change is being processed to remove the 24 Vdc ECCS instrumentation system batteries and chargers and replace them with a 125/24 Vdc power supply. The DC Power Supplies will be fed directly from the existing 125 Vdc Main Station Battery distribution panels. The 125 Vdc Main Station Batteries have sufficient capacity to supply the load directly. The elimination of the ECCS batteries and their associated chargers will result in consolidation of the DC systems and elimination of the maintenance and testing associated with the batteries and chargers.

The design change will consist of installing two 125/24 Vdc power supplies and their associated 125 Vdc supply feeders to Main Station Battery distribution panels DC-1C and DC-2C. These power supplies will provide power to the 24 Vdc ECCS instrumentation distribution panel loads in place of the ECCS batteries and chargers. The standby charger will be replaced by an additional 125/24 Vdc power supply fed from Alternate Shutdown Battery AS-1 to meet the Appendix R, Alternate Shutdown criteria. The power supplies will be equipped with alarm

circuitry to alert operators to abnormal conditions. The function of the single cell battery charger is no longer required after removal of the 24 Vdc ECCS Batteries.

There are two redundant 125 Vdc Main Station Battery systems at Vermont Yankee. Each system is capable of independently supplying its loads and consists of a battery, associated bus and dedicated charger. The chargers are capable of supplying normal continuous dc loads and maintaining a floating charge on the associated battery. The batteries normally float on the system, supplying any momentary high current demands. The charger is also capable of recharging the battery to full charge if it becomes discharged. Currently, a single standby/swing charger is available and can be manually connected to either 125 volt main station battery bus. A design change is also in progress to provide a dedicated standby charger for each 125 Vdc system. The Main Station Battery system capacity is sufficient to provide the additional load for the ECCS battery system. The separation, qualification and reliability of the 125 Vdc main station battery power source is essentially the same as the 24 Vdc ECCS system that is to be eliminated.

A nonsafety-related battery, Alternate Shutdown AS-1, is primarily provided as an alternate supply to the Reactor Core Isolation Cooling (RCIC) system loads for scenarios requiring plant shutdown from outside the main Control Room. This battery system is comprised of a 125 Vdc battery and a charger. The charger is powered from an emergency diesel generator supplied source.

A description of the 125 volt DC systems is provided in VY FSAR Section 8.6.

SAFETY ASSESSMENT

The 125 Vdc battery systems will continue to function as they do now. The addition of the power supplies and attendant loads is small and well within the capability of the 125 Vdc battery systems. The 125 Vdc chargers are likewise within their capability to recharge the batteries with the additional loads and are powered from emergency diesel generator (EDG) supplied sources, as are the current ECCS battery chargers. Both of the 24 Vdc ECCS battery systems that are being eliminated and the 125 Vdc Main Station Battery systems are classified as Safety Class Electric (SCE). Since loads are just transferred to different, redundant, SCE batteries and EDG supplied chargers, the EDG loading is essentially unchanged and single failure criteria is preserved.

Likewise, the Alternate Shutdown Battery (AS-1) has sufficient excess capacity for the added power supply and does not exceed the capability of the charger to recharge the battery.

Thus, there is no significant change in the operation of equipment supplied from the 24 Vdc ECCS system, the 125 Vdc Main Station Battery system, or the Alternate Shutdown (AS-1) Battery system. This change is only to the source of power to the ECCS instrumentation loads, and they are to be supplied by equally reliable, DC sources.

Docket No. 50-271
BVY 00-107

Attachment 2

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 242

Elimination of 24 Vdc ECCS Instrumentation Batteries

Determination of No Significant Hazards Consideration

Determination of No Significant Hazards Consideration

Description of Amendment Request:

This proposed change eliminates the 24 Vdc ECCS Instrumentation Battery Technical Specifications. Conforming changes to the Technical Specification Bases are also proposed.

Basis for No Significant Hazards Determination:

Pursuant to 10CFR50.92, Vermont Yankee (VY) has reviewed the proposed change and concludes that the change does not involve a significant hazard consideration since the proposed change satisfies the criteria in 10CFR50.92(c).

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

The loads previously supplied by the ECCS battery systems will be added to the main station battery systems. Redundancy and reliability are maintained within the main station battery systems and the equipment will operate, essentially the same. No change in accident assumptions or precursors are involved with this change and system operation and response to analyzed events is likewise unchanged.

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

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

The methods by which the DC system supplied equipment performs their safety functions are unchanged and remain consistent with current safety analysis assumptions. The redundancy and reliability of the equipment will be maintained. There is no change in system or plant operation that involves failure modes other than those previously evaluated.

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

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

No adverse effect on equipment operation, capability or reliability will result from this change. The equipment supplied by the DC systems involved in this change will continue to be provided with adequate, redundant, reliable, safety class DC power. Safety related loads will continue to function in accordance with analysis assumptions.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Docket No. 50-271
BVY 00-107

Attachment 3

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 242

Elimination of 24 Vdc ECCS Instrumentation Batteries

Marked-up Version of the Current Technical Specifications

3.10 LIMITING CONDITIONS FOR OPERATION

c. Two Switchyard Batteries each with one associated charger and its associated DC distribution panel.

d. Both ~~ECCS~~ Instrumentation batteries, associated chargers, and distribution panels.

e. The Alternate Shutdown AS-2 battery, one of the two associated chargers, and DC Distribution panel DC-2AS.

f. Both UPS batteries, associated Uninterruptible Power Supplies and MCC 89A and B.

deleted

4.10 SURVEILLANCE REQUIREMENTS

c. Once per operating cycle each ~~ECCS~~ battery, Alternate Shutdown AS-2 battery, and Main Station battery shall be subjected to a Service (Load Profile) discharge test. The specific gravity and voltage of each cell shall be measured after the recharge at the end of the discharge test and logged.

d. Once every five years, each ~~ECCS~~ UPS, AS-2, and Main Station Battery shall be subjected to a Performance (capacity) Discharge Test. This test will be performed in lieu of the Service Test requirements of 4.10.A.2.c above.

e. Each 480 V Uninterruptible Power System shall be checked daily.

f. 480 V Motor Control Centers 89A and 89B shall be checked daily.

g. Once per operating cycle, the actual conditions under which the 480 V Uninterruptible Power Systems are required will be simulated and a test conducted to demonstrate equipment performance.

3.10 LIMITING CONDITIONS FOR OPERATION

- c. From and after the date that one of the two 24 volt ECOS Instrumentation Battery Systems is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding three days unless such Battery System is sooner made operable.

- d. From and after the date that the AS-2 125 Volt battery system is made or found to be inoperable for any reason, continued reactor operation is permissible provided Diesel Generator DG-1-1A control power is transferred to Station Battery B1.

- e. From and after the date that one of the two 24 Volt Neutron Monitoring and Process Radiation Monitoring battery systems is found or made to be inoperable for any reason, continued reactor operation is permissible providing the minimum channel requirements of Sections 3.1 and 3.2 for the Neutron Monitoring and Process Radiation Monitoring systems are met.

4.10 SURVEILLANCE REQUIREMENTS

VYNPS

BASES: 3.10 (Cont'd)

In the event that one off-site power source and one emergency diesel generator are unavailable, adequate power is available to operate both emergency safeguards buses from the operable off-site power source and to operate 100% of the minimum emergency safeguards loads from the operable diesel generator. In addition, the station blackout alternate ac source of power is capable of supplying power to the bus with the inoperable diesel generator. Therefore, continued operation is permitted for up to 24 hours with one off-site power source and one emergency diesel generator unavailable.

Either of the two station batteries has enough capacity to energize the vital buses and supply d-c power to the other emergency equipment for 8 hours without being recharged. In addition, two 24 volt ECCS Instrumentation batteries supply power to instruments that provide automatic initiation of the ECCS and some reactor pressure and level indication in the Control Room.

Due to the high reliability of battery systems, one of the two batteries may be out of service for up to three days. This minimizes the probability of unwarranted shutdown by providing adequate time for reasonable repairs. A station battery, ~~ECCS Instrumentation battery~~, or an Uninterruptible Power System battery is considered inoperable if one cell is out of service. A cell will be considered out of service if its float voltage is below 2.13 volts and the specific gravity is below 1.190 at 77°F.

The Battery Room is ventilated to prevent accumulation of hydrogen gas. With a complete loss of the ventilation system, the accumulation of hydrogen would not exceed 4 percent concentration in 5 days. Therefore, on loss of Battery Room ventilation, the use of portable ventilation equipment and daily sampling provide assurance that potentially hazardous quantities of hydrogen gas will not accumulate.

- C. The minimum diesel fuel supply of 36,000 gallons will supply one diesel generator for a minimum of seven days of operation at its continuous duty rating of 2750kW. Additional fuel can be obtained and delivered to the site from nearby sources within the seven-day period.

BASES:4.10 AUXILIARY ELECTRICAL POWER SYSTEMS

- A. The monthly tests of the diesel generators are conducted to check for equipment failures and deterioration. The test of the undervoltage automatic starting circuits will prove that each diesel will receive a start signal if a loss of voltage should occur on its emergency bus. The loading of each diesel generator is conducted to demonstrate proper operation at less than the continuous rating and at equilibrium operating conditions. Generator experience at other generator stations indicates that the testing frequency is adequate to assure a high reliability of operation should the system be required.

Both diesel generators have air compressors and air receivers tanks for starting. It is expected that the air compressors will run only infrequently. During the monthly check of the units, each receiver will be drawn down below the point at which the compressor automatically starts to check operation and the ability of the compressors to recharge the receivers.

Following the tests of the units and at least weekly, the fuel volume remaining will be checked. At the end of the monthly load test of the diesel generators, the fuel oil transfer pump will be operated to refill the day tank. The day tank level indicator and alarm switches will be checked at this time. Fuel oil transfer pump operability testing is in accordance with Specification 4.6.E.

The test of the diesels and Uninterruptible Power Systems during each refueling interval will be more comprehensive in that it will functionally test the system; i.e., it will check starting and closure of breakers and sequencing of loads. The units will be started by simulation of a loss of coolant accident. In addition, a loss of normal power condition will be imposed to simulate a loss of off-site power. The timing sequence will be checked to assure proper loading in the time required. Periodic tests between refueling intervals check the capability of the diesels to start in the required time and to deliver the expected emergency load requirements. Periodic testing of the various components plus a functional test at a refueling interval are sufficient to maintain adequate reliability.

The purpose of establishing the delayed access source once per operating cycle is to demonstrate that the delayed access source can be established within the required time of one hour and to demonstrate proper operation of the generator no load disconnect switch. The test demonstrates that power can be transferred to the delayed access source in a timely fashion. The test is not intended to simulate an actual loss of the immediate access source, failure of both diesel generators and consequent loss of power to the station buses.

- B. Although the Main Station, ECQS, AS-2, and UPS batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

The performance discharge test provides adequate indication and assurance that the batteries have the specified ampere hour capacity. The rate of discharge during this test shall be in accordance with the manufacturer's discharge characteristic curves

Docket No. 50-271
BVY 00-107

Attachment 4

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 242

Elimination of 24 Vdc ECCS Instrumentation Batteries

Re-typed Technical Specification Pages

3.10 LIMITING CONDITIONS FOR OPERATION

- c. Two Switchyard Batteries each with one associated charger and its associated DC distribution panel.
- d. Deleted.
- e. The Alternate Shutdown AS-2 battery, one of the two associated chargers, and DC Distribution panel DC-2AS.
- f. Both UPS batteries, associated Uninterruptible Power Supplies and MCC 89A and B.

4.10 SURVEILLANCE REQUIREMENTS

- c. Once per operating cycle each Alternate Shutdown AS-2 battery, and Main Station battery shall be subjected to a Service (Load Profile) discharge test. The specific gravity and voltage of each cell shall be measured after the recharge at the end of the discharge test and logged.
- d. Once every five years, each UPS, AS-2, and Main Station Battery shall be subjected to a Performance (capacity) Discharge Test. This test will be performed in lieu of the Service Test requirements of 4.10.A.2.c above.
- e. Each 480 V Uninterruptible Power System shall be checked daily.
- f. 480 V Motor Control Centers 89A and 89B shall be checked daily.
- g. Once per operating cycle, the actual conditions under which the 480 V Uninterruptible Power Systems are required will be simulated and a test conducted to demonstrate equipment performance.

3.10 LIMITING CONDITIONS FOR OPERATION

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- d. From and after the date that the AS-2 125 Volt battery system is made or found to be inoperable for any reason, continued reactor operation is permissible provided Diesel Generator DG-1-1A control power is transferred to Station Battery B1.
- e. From and after the date that one of the two 24 Volt Neutron Monitoring and Process Radiation Monitoring battery systems is found or made to be inoperable for any reason, continued reactor operation is permissible providing the minimum channel requirements of Sections 3.1 and 3.2 for the Neutron Monitoring and Process Radiation Monitoring systems are met.

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