Entergy Nuclear Operations, Inc.
Vermont Yankee
320 Governor Hunt Road
Vernon, VT 05354
Tel 802 257 7711

Robert J. Wanczyk
Manager, Licensing

BVY 10-056

October 6, 2010

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

SUBJECT: Revision of Technical Specification Bases Pages
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

Dear Sir or Madam:

This letter provides revised Vermont Yankee Technical Specification (TS) Bases pages. The Vermont Yankee TS Bases were changed to provide a description of the new Vernon 115 kV Switchyard and connections to Vermont Yankee.

These changes, processed in accordance with our TS Bases Control Program (TS 6.7.E), were determined not to require prior NRC approval. The revised TS Bases pages are provided for your information and for updating and inclusion with your copy of Vermont Yankee TS. No NRC action is requested or required in conjunction with this submittal.

There are no new regulatory commitments being made in this submittal.

Should you have any questions concerning this submittal, please contact me at (802) 451-3166.

Sincerely,

Robert Wanczyk

[RJW/JTM]

Attachment : TS Bases pages 220, 221, 221a, 221b and 221c

cc listing (next page)

A001
NRR

cc: Mr. William M. Dean, Regional Administrator
U.S. Nuclear Regulatory Commission, Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Mr. James S. Kim, Project Manager
U.S. Nuclear Regulatory Commission
Mail Stop O 8 C2A
Washington, DC 20555

USNRC Resident Inspector
Entergy Nuclear Vermont Yankee
P.O. Box 157
320 Governor Hunt Road
Vernon, Vermont 05354

Mr. David O'Brien, Commissioner
VT Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05620

BASES:

3.10 AUXILIARY ELECTRIC POWER SYSTEMS

A. The objective of this Specification is to assure that adequate power will be available to operate the emergency safeguards equipment. Adequate power can be provided by any one of the following sources: an immediate access source through both startup transformers, backfeed through the main transformer, or either of the two diesel generators. The backfeed through the main transformer is a delayed access off-site power source. The delayed access source is made available by opening the generator no load disconnect switch and establishing a feed from the 345 kV switchyard through the main generator step up transformer and unit auxiliary transformer to the 4.16 kV buses. The delayed access source is available within an hour of loss of main generator capability to assure that fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded.

Electric power can be supplied from the off-site transmission network to the on-site Emergency Safeguards Electric Power Distribution System by two independent sources, one immediate access and one delayed access, designed and located so as to minimize to the extent practicable the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. An additional off-site source, a 4160 V tie line to Vernon Hydroelectric Station, can supply either 4160 V emergency bus. It is used to meet station blackout and Appendix R licensing requirements.

Off-site power is supplied to the Vermont Yankee (VY) 345 kV switchyard from the transmission network via two independent 345 kV tie lines from the Vernon 345 kV switchyard. Both 345 kV tie lines are sized to carry the entire output of Vermont Yankee. Each 345 kV tie line is protected by two diverse and redundant channels of line protection. The loss of one tie line does not affect the reliability or operability of the other. The new Vernon 345 kV switchyard is located just north of the VY 345 kV switchyard. The Vernon 345 kV switchyard is connected to the 345 kV grid by four 345 kV transmission lines utilizing a "breaker and a half" scheme. With this redundant configuration, either 345 kV tie line meets the requirements for an operable delayed access source.

In the VY 345 kV switchyard, a 400 MVA autotransformer is connected between the 345 kV north bus and the VY 115 kV bus through the K-1 breaker. A second 400 MVA transformer, located in the new Vernon switchyard, connects the Vernon 345 kV switchyard to the Vernon 115 kV yard. This second autotransformer also feeds the VY 115 kV switchyard through the 115 kV K-40 tie line from the Vernon 115 kV switchyard. The two autotransformers are operated in parallel to feed the VY 115 kV bus but are physically separated and electrically independent. The loss of one autotransformer will not cause loss of the other one. The two autotransformers are the normal source of power for the 115 kV bus and the station startup transformers. They also feed the 115 kV transmission line to Chestnut Hill/Vernon Road.

The immediate access source power is provided to the 4160 buses through two startup transformers fed from the VY 115 kV switchyard through disconnect T-3. It is available within seconds following a design basis accident to assure core cooling, containment integrity and other vital functions are being maintained. The normal supply to the VY 115 kV switchyard bus is from the two paralleled, but independent, 345 kV/115 kV autotransformers described above. In the unlikely event that both autotransformers are out of service, an alternate immediate access source through the Chestnut Hill/Vernon Road line, Vernon 115 kV yard and K-40 Tie Line may be made available. Its availability is dependent on its preloading of the Chestnut Hill/Vernon Road line which must be limited by system

BASES: 3.10 (Cont'd)

dispatchers prior to its being declared an immediate access source. The availability of any one of these three sources of power to the VY 115 kV bus will fulfill the requirements for an Immediate Access Source to the start-up transformers.

A qualified source consists of all breakers, transformers, switches, interrupting devices, cabling, controls and circuit paths (including feeder breakers to both 4160 V emergency buses) required to transmit adequate power from the off-site transmission network to the on-site Emergency Safeguards Buses 3 and 4.

Two 480 V Uninterruptible Power Systems supply power to the LPCIS valves via designated Motor Control Centers. The 480 V Uninterruptible Power Systems are redundant and independent of any on-site ac power sources. A 480 V Uninterruptible Power System consists of a battery and a motor generator unit.

This Specification assures that at least two off-site and two on-site power sources, and both 480 V Uninterruptible Power Systems will be available before the reactor is made critical. In addition to assuring power source availability, all of the associated switchgear must be operable as specified to assure that the emergency cooling equipment can be operated, if required, from the power sources.

Station service power is supplied to the station through either the unit auxiliary transformer or the startup transformers. In order to start up the station, the startup transformers are required to supply the station auxiliary load. After the unit is synchronized to the system, the unit auxiliary transformer carries the station auxiliary load, except for the station cooling tower loads which are always supplied by one of the startup transformers. The station cooling tower loads are not required to perform an engineered safety feature function in the event of an accident; therefore, an alternate source of power is not essential. Normally one startup transformer supplies 4160 volt Buses 1 and 3, and the other supplies Buses 2 and 4.

A battery charger is supplied for each battery. In addition, the two 125 volt main station battery systems have two chargers available for each system. Either charger is capable of supplying its respective 125 VDC bus.

Power for the Reactor Protection System is supplied by 120 V ac motor generators with an alternate supply from MCC-8B. Two redundant, Class 1E, seismically qualified power protection panels are connected in series with each ac power source. These panels provide overvoltage, undervoltage, and underfrequency protection for the system. Setpoints are chosen to be consistent with the input power requirements of the equipment connected to the bus.

B. An Operable delayed access source is defined as 1) either one of the two 345 kV tie lines from the Vernon 345 kV switchyard providing power to the VY 345 kV switchyard ring bus, plus 2) either of the two generator breakers being available to provide power from the VY 345 kV switchyard ring bus through disconnect T-1 to backfeed the Main Step-up transformer and the 22 kV Isolated Phase Bus, plus 3) the auxiliary transformer available to provide power to the 4 kV buses with the generator disconnect switch GD-1 open.

Adequate power is available to operate the emergency safeguards equipment from the immediate access source or for minimum engineered safety features from either of the emergency diesel generators. Therefore, reactor operation is permitted for up to seven days with the delayed-access off-site power source unavailable provided all required systems, subsystems, trains, components and devices (i.e.,

BASES: 3.10 (Cont'd)

required features) supported by the operable off-site power source are operable. Provided at least one off-site power source is available to each 4160 V Emergency Safeguards Bus, no additional action requirements exist due to a required feature being inoperable. However, if both off-site power sources are lost to one or both 4160 V Emergency Safeguards Buses and a required feature is inoperable, then redundant required features with no off-site power are required to be immediately declared inoperable and the applicable Technical Specification action(s) taken. These provisional requirements ensure that, during the seven day allowed outage time, a loss of off-site power with a coincident single failure of a diesel generator does not result in a loss of safety function of critical systems. Required features are systems, subsystems, trains, components and devices supported by the off-site power sources and diesel generators and are required to be operable by the Technical Specifications in the existing plant mode or condition.

Each of the diesel generator units is capable of supplying 100 percent of the minimum emergency loads required under postulated design basis accident conditions. Each unit is physically and electrically independent of the other and of any off-site power source. Adequate power is also available to operate the emergency safeguards equipment from the immediate access source or from the delayed access source of off-site power. Therefore, one diesel generator can be allowed out of service for a period of seven days without jeopardizing the safety of the station provided all required systems, subsystems, trains, components and devices (i.e., required features) supported by the operable diesel generator are operable. If required feature(s) supported by the operable diesel generator are inoperable, the redundant required feature(s) supported by the inoperable diesel generator are required to be immediately declared inoperable and the applicable Technical Specification action(s) taken. These provisional requirements ensure that, during the seven day allowed outage time, a loss of off-site power does not result in a loss of safety function of critical systems. Required features are systems, subsystems, trains, components and devices supported by the off-site power sources and diesel generators and are required to be operable by the Technical Specifications in the existing plant mode or condition.

In the event that the immediate access source is unavailable, adequate power is available to operate the emergency safeguards equipment from the emergency diesel generators or from the delayed-access off-site power source. Therefore, reactor operation is permitted for up to 7 days with the immediate access source unavailable provided all required systems, subsystems, trains, components and devices (i.e., required features) supported by the operable off-site power source are operable. Provided at least one off-site power source is available to each 4160 V Emergency Safeguards Bus, no additional action requirements exist due to a required feature being inoperable. However, if both off-site power sources are lost to one or both 4160 V Emergency Safeguards Buses and a required feature is inoperable, then redundant required features with no off-site power are required to be immediately declared inoperable and the applicable Technical Specification action(s) taken. These provisional requirements ensure that, during the seven day allowed outage time, a loss of off-site power with a coincident single failure of a diesel generator does not result in a loss of safety function of critical systems. Required features are systems, subsystems, trains, components and devices supported by the off-site power sources and diesel generators and are required to be operable by the Technical Specifications in the existing plant mode or condition.

BASES: 3.10 (Cont'd)

In the event that both emergency diesel generators are lost, adequate power is available to operate the emergency safeguards equipment from the immediate access source or from the delayed-access off-site power source within one hour.

The plant is designed to accept one hundred percent load rejection without adverse effects to the plant or the transmission system. Network stability analysis studies indicate that the loss of the Vermont Yankee unit will not cause instability and consequent tripping of the connecting 345 kV and 115 kV lines. Thus, the availability of the off-site power sources is assured in the event of a turbine trip.

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 provided all required systems, subsystems, trains, components and devices (i.e., required features) supported by the operable off-site power source are operable and all required features supported by the operable diesel generator are operable. If required feature(s) supported by the operable off-site power source are inoperable or if the required feature(s) supported by the operable diesel generator are inoperable, the redundant required feature(s) with no off-site power available and the redundant required feature(s) supported by the inoperable diesel generator are required to be immediately declared inoperable and the applicable Technical Specification action(s) taken. These provisional requirements ensure that, during the 24 hour allowed outage time, a loss of off-site power does not result in a loss of safety function of critical systems. Required features are systems, subsystems, trains, components and devices supported by the off-site power sources and diesel generators and are required to be operable by the Technical Specifications in the existing plant mode or condition.

Either of the two main station batteries has sufficient capacity to energize the vital buses and supply d-c power to the associated emergency equipment for 2 hours without being recharged.

Due to the high reliability of battery systems, one of the two batteries may be out of service for up to three days provided all required systems, subsystems, trains, components and devices supported by the operable 125 volt Station Battery System are operable. The provisional requirement ensures that, during the three day allowed outage time, a loss of safety function of critical systems does not exist. Required systems, subsystems, trains, components and devices are those supported by 125 volt Station Battery System and are required to be operable by the Technical Specifications in the existing plant mode or condition. This minimizes the probability of unwarranted shutdown by providing adequate time for reasonable repairs. A station 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.

BASES: 3.10 (Cont'd)

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 2 1/2 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.