Entergy

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

Coley C. Chappell
Regulatory Assurance Manager

BVY 14-074

October 14, 2014

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

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 Nuclear Power Station (VY) Technical Specification (TS) Bases pages. The TS Bases were revised to support defueling activities following the permanent shutdown of VY.

This change, processed in accordance with our TS Bases Control Program (TS 6.7.E), was determined not to require prior NRC approval. The revised Bases pages are provided in Attachment 1 for your information and for updating and inclusion with your copy of VY TS. No NRC action is 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) 451-3374.

Sincerely,

for Coley Chappell
JEFF MEYER

[CCC/ble]

Attachment: 1. Revised Technical Specification Bases Pages

A001
NRR

cc: Region 1 Administrator
U.S. Nuclear Regulatory Commission
2100 Renaissance Blvd., Suite 100
King of Prussia, PA 19406-2713

U. S. Nuclear Regulatory Commission
ATTN: James S. Kim
OWFN - Mail Stop O-8D15
11555 Rockville Pike
Washington, DC 20555

USNRC Resident Inspector
Entergy Nuclear Vermont Yankee
320 Governor Hunt Road
Vernon, Vermont 05354

Mr. Christopher Recchia, Commissioner
VT Department of Public Service
112 State Street – Drawer 20
Montpelier, Vermont 05620

Attachment 1

Vermont Yankee Nuclear Power Station

Revised Technical Specification Bases Pages

BASES:

3.12 & 4.12 REFUELING

A. During refueling operations, the reactivity potential of the core is being altered. It is necessary to require certain interlocks and restrict certain refueling procedures such that there is assurance that inadvertent criticality does not occur.

To minimize the possibility of loading fuel into a cell containing no control rod, it is required that all control rods are fully inserted when fuel is being loaded into the reactor core. This requirement assures that during refueling the refueling interlocks, as designed, will prevent inadvertent criticality. Should the interlocks be made or found to be inoperable, the specifications offer an alternative to the cessation of fuel movement, not withstanding the completion of movement of a component to a safe position. The alternative is to immediately block control rod withdrawal and then perform a verification that all control rods are fully inserted with no exceptions, not even for rods in cells which have been completely defueled. The core reactivity limitation of Specification 3.3 limits the core alterations to assure that the resulting core loading can be controlled with the Reactivity Control System and interlocks at any time during shutdown or the following operating cycle.

The addition of large amounts of reactivity to the core is prevented by operating procedures, which are in turn backed up by refueling interlocks on rod withdrawal and movement of the refueling platform. When the mode switch is in the "Refuel" position, interlocks prevent the refueling platform from being moved over the core if a control rod is withdrawn and fuel is on a hoist.

Likewise, if the refueling platform is over the core with fuel on a hoist, control rod motion is blocked by the interlocks. With the mode switch in the refuel position, only one control rod can be withdrawn.

As discussed above, the purpose of the refueling interlocks is to prevent inadvertent criticality by ensuring that fuel is not loaded into a cell with a withdrawn control rod. The alternative identified within the specifications to continue fuel movement with inoperable interlocks satisfies this goal. The first refueling interlock safety function is to block control rod withdrawal whenever fuel is being moved in the reactor vessel. The alternative performs this function by requiring that a control rod block be placed in effect. The second refueling interlock safety function is to prevent fuel from being loaded into the vessel when a control rod is withdrawn. This function will continue to be performed by the second step of the alternative which is to verify that all control rods are fully inserted. Therefore, the alternative provides equal assurance against inadvertent criticality during fuel handling within the reactor vessel with inoperable interlocks.

The Surveillance Requirements for the refueling interlocks identify that the "required interlock inputs" shall be functionally tested. The intent of this statement is that only the interlock inputs associated with the equipment actually used to facilitate the core alteration is required to be functionally tested. For example, if the main mast is to be used for fuel movement, then the interlock inputs associated with the main mast need to be functionally tested. Conversely, if the frame mounted hoist and monorail mounted hoist, will not be utilized, then the interlock inputs associated with the frame mounted hoist and monorail mounted hoist need not be functionally tested.

BASES: 3.12 & 4.12 (Cont'd)

E. The intent of this specification is to permit the unloading of a portion of the reactor core for such purposes as inservice inspection requirements, examination of the core support plate, control rod, control rod drive maintenance, etc. This specification provides assurance that inadvertent criticality does not occur during such operation. This specification also permits complete unloading of the reactor core in order to place the plant in the permanently defueled condition.

This operation is performed with the mode switch in the "Refuel" position to provide the refueling interlocks normally available during refueling as explained in the Bases for Specification 3.12.A. In order to withdraw more than one control rod, it is necessary to bypass the refueling interlock on each withdrawn control rod which prevents more than one control rod from being withdrawn at a time. The requirement that the fuel assemblies in the cell controlled by the control rod be removed from the reactor core before the interlock can be bypassed ensures that withdrawal of another control rod does not result in inadvertent criticality. Each control rod essentially provides reactivity control for the fuel assemblies in the cell associated with that control rod. Thus, removal of an entire cell (fuel assemblies plus control rod) results in a lower reactivity potential of the core.

One method available for unloading or reloading the core is the spiral unload/reload. Spiral reloading and unloading encompass reloading or unloading a cell on the edge of a continuous fueled region (the cell can be reloaded or unloaded in any sequence.) The pattern begins (for reloading) and ends (for unloading) around a single SRM. The spiral reloading pattern is the reverse of the unloading pattern, with the exception that two diagonally adjacent bundles, which have previously accumulated exposure in-core, and placed next to each of the four SRMs before the actual spiral reloading begins. The spiral reload can be to either the original configuration or a different configuration.

Additionally, at least 50% of the fuel assemblies to be reloaded into the core shall have previously accumulated a minimum exposure of 1000 Mwd/T to ensure the presence of a minimum neutron flux as described in Bases Section 3.12.B.

F. The intent of this specification is to assure that the reactor core has been shut down for at least 24 hours following power operation and prior to fuel handling or movement. The safety analysis for the postulated refueling accident assumed that the reactor had been shut down for 24 hours for fission product decay prior to any fuel handling which could result in dropping of a fuel assembly.

G. Deleted

H. The Spent Fuel Pool Cooling System is designed to maintain the pool water temperature below 125°F during normal refueling operations. If the reactor core is completely discharged, the temperature of the pool water may increase to greater than 125°F. The RHR System supplemental fuel pool cooling may be used under these conditions to maintain the pool water temperature less than 150°F.