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BVY 11-068

September 30, 2011

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

SUBJECT: Revision of Technical Specification Bases Pages due to License Amendment 248
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

REFERENCE: 1. Letter, USNRC to VYNPS, "Vermont Yankee Nuclear Power Station - Issuance of Amendment RE: Elimination of Technical Specification Provisions Allowing High-Pressure Coolant Injection and Reactor Core Isolation Cooling Suctions to be Aligned to the Suppression Pool (TAC No. ME 4999)," NVY 11-071, dated August 25, 2011

Dear Sir or Madam:

This letter provides revised Vermont Yankee (VY) Technical Specification (TS) Bases pages. The VY TS Bases were revised to incorporate changes consistent with changes approved by License Amendment 248 (Reference 1).

These changes, processed in accordance with the VY 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 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 802-451-3166.

Sincerely,

Robert J Wanczyk

[RJW/JMD]

A001
NRR

Attachment: 1. Revised Technical Specification Bases Pages (7 pages)

cc: Mr. William M. Dean
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Attachment 1

Vermont Yankee Nuclear Power Station

Revised Technical Specification Bases Pages (7 pages)

BASES: 3.2.A/4.2.A EMERGENCY CORE COOLING SYSTEM (ECCS)

ACTIONS (continued)

inoperable within 1 hour. The Table 3.2.1 ACTION Note completion time is intended to allow the operator time to evaluate and repair any discovered inoperabilities. For Table 3.2.1 ACTION Note 4.a, the completion time only begins upon discovery of a loss of HPCI initiation capability due to inoperable, untripped channels within the same Trip Function as described in the paragraph above. The 1 hour completion time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the diversity of sensors available to provide initiation signals and the redundancy of the ECCS design, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 3) to permit restoration of any inoperable channel to operable status. If the inoperable channel cannot be restored to operable status within the allowable out of service time, the channel must be placed in the tripped condition per Table 3.2.1 ACTION Note 4.b. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue.

Alternately, if it is not desired to place the channel in trip (e.g., as in the case where placing the inoperable channel in trip would result in an initiation), the HPCI System must be declared inoperable. With any applicable Action and associated completion time not met, the HPCI System may be incapable of performing the intended function, and the HPCI System must be declared inoperable immediately.

Table 3.2.1 ACTION Note 5

Table 3.2.1 ACTION Note 5 is intended to ensure that the appropriate actions are taken when required channels are inoperable. The Low Condensate Storage Tank water level trip instrumentation is configured as a single trip system with two channels in a one-out-of-two logic configuration. Therefore, either channel will actuate the trip function. Two channels are required to be operable when HPCI is required to be operable to ensure that no single failure can preclude HPCI swap to the suppression pool. The 1 hour completion time from discovery of loss of initiation capability is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The completion time is acceptable because it minimizes risk while allowing time for restoration of the channels.

BASES: 3.2.A/4.2.A EMERGENCY CORE COOLING SYSTEM (ECCS)

ACTIONS (continued)

Table 3.2.1 ACTION Note 6

For Trip Function 3.d, the loss of one or more channels results in a loss of the function (two-out-of-two logic). This loss was considered during the development of Reference 3 and considered acceptable for the 24 hours allowed to permit restoration of the inoperable channel to operable status by Table 3.2.1 ACTION Note 6.a. If the inoperable channel cannot be restored to operable status within the allowable out of service time, the HPCI System must be declared inoperable. With any applicable Action and associated completion time not met, the HPCI System may be incapable of performing the intended function, and the HPCI System must be declared inoperable immediately. The Required Actions do not allow placing the channel in trip since this action would either cause the initiation or it would not necessarily result in a safe state for the channel in all events.

Table 3.2.1 ACTION Note 7

Table 3.2.1 ACTION Note 7.a is intended to ensure that appropriate actions are taken if multiple, inoperable, untripped channels within the same Trip Function result in redundant automatic initiation capability being lost for the ADS. Redundant automatic initiation capability is lost if either (a) one or more Trip Function 4.a channels are inoperable and untripped in each trip system logic, or (b) one or more Trip Function 4.b channels are inoperable and untripped in each trip system.

BASES: 3.2.L/4.2.L REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM INSTRUMENTATION

ACTIONS (continued)

Low Reactor Vessel Water Level channels in the same trip system logic. The 1 hour completion time from discovery of loss of initiation capability is acceptable because it minimizes risk while allowing time for restoration or tripping of channels.

Because of the redundancy of sensors available to provide initiation signals and the fact that the RCIC System is not assumed in any accident or transient analysis, an allowable out of service time of 24 hours has been shown to be acceptable (Ref. 2) to permit restoration of any inoperable channel to operable status. If the inoperable channel cannot be restored to operable status within the allowable out of service time, the channel must be placed in the tripped condition per Table 3.2.9 ACTION Note 1.b. Placing the inoperable channel in trip would conservatively compensate for the inoperability, restore capability to accommodate a single failure, and allow operation to continue.

With any required Action and associated completion time of Table 3.2.9 ACTION Note 1.a or 1.b not met, the RCIC System may be incapable of performing the intended function, and the RCIC System must be declared inoperable immediately.

Table 3.2.9 ACTION Note 2

Table 3.2.9 ACTION Note 2 is intended to ensure that the appropriate actions are taken when required channels are inoperable. The Low Condensate Storage Tank water level trip instrumentation is configured as a single trip system with two channels in a one-out-of-two logic configuration. Therefore, either channel will actuate the trip function. Two channels are required to be operable when RCIC is required to be operable to ensure that no single failure can preclude RCIC swap to the suppression pool. The 1 hour completion time from discovery of loss of initiation capability is intended to allow the operator time to evaluate and repair any discovered inoperabilities. The completion time is acceptable because it minimizes risk while allowing time for restoration of the channels.

BASES: 3.2.L/4.2.L REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM INSTRUMENTATION

ACTIONS (continued)

Table 3.2.9 ACTION Note 3

A risk based analysis was performed and determined that an allowable out of service time of 24 hours (Ref. 2) is acceptable to permit restoration of any inoperable Trip Function 3 channel to operable status (Table 3.2.9 ACTION Note 3.a). A required Action (similar to Table 3.2.9 ACTION Note 1.a) limiting the allowable out of service time, if a loss of automatic RCIC initiation capability (i.e., loss of high water level trip capability) exists, is not required. Table 3.2.9 ACTION Note 3 applies to the High Reactor Vessel Water Level Trip Function whose logic is arranged such that any inoperable channel will result in a loss of automatic RCIC initiation capability. As stated above, this loss of automatic RCIC initiation capability was analyzed and determined to be acceptable. One inoperable channel may result in a loss of high water level trip capability but will not prevent RCIC System automatic start capability. However, the Required Action does not allow placing a channel in trip since this action would not necessarily result in a safe state for the channel in all events (a failure of the remaining channel could prevent a RCIC System start).

With any required Action and associated completion time of Table 3.2.9 ACTION Note 3.a not met, the RCIC System may be incapable of performing the intended function, and the RCIC System must be declared inoperable immediately.

SURVEILLANCE REQUIREMENTS

Surveillance Requirement 4.2.L.1

As indicated in Surveillance Requirement 4.2.L.1, RCIC System instrumentation shall be checked, functionally tested and calibrated as indicated in Table 4.2.9. Table 4.2.9 identifies, for each Trip Function, the applicable Surveillance Requirements.

Surveillance Requirement 4.2.L.1 also indicates that when a channel is placed in an inoperable status solely for performance of required instrumentation Surveillances, entry into associated LCO and required Actions may be delayed

BASES: 3.5 (Cont'd)

SSW pump, SSW valve, etc.), then reactor operation is limited to 15 days provided that during this time both the normal and emergency power supplies for the remaining operable equipment are also operable, in addition to requiring the operability of all remaining active components of the SSW system which perform a safety function and the alternate cooling tower fan.

If the SSW System would not be capable of performing its safety function for any reason, even without assuming a worst case single active failure, then the reactor must be placed in the cold shutdown condition within 24 hours.

E. High Pressure Coolant Injection System

The High Pressure Coolant Injection System (HPCIs) is provided to adequately cool the core for all pipe breaks smaller than those for which the LPCI or Core Spray Cooling Subsystems can protect the core.

The HPCIs meets this requirement without the use of outside power. For the pipe breaks for which the HPCIs is intended to function the core never uncovers and is continuously cooled; thus, no clad damage occurs and clad temperatures remain near normal throughout the transient. Reference: Subsection 6.5.2.2 of the FSAR.

In accordance with Specification 3.5.E.2, if the HPCI System is inoperable and the RCIC System is verified to be operable, the HPCI System must be restored to operable status within 14 days during reactor power operation. In this condition, adequate core cooling is ensured by the operability of the redundant and diverse low pressure emergency core cooling system (ECCS) injection and spray subsystems in conjunction with the Automatic Depressurization System (ADS). Also, the RCIC System will automatically provide makeup water at reactor operating pressures above 150 psig. During reactor power operation, immediate verification of RCIC operability is therefore required when HPCI is inoperable. This may be performed as an administrative check by examining logs or other information to determine if RCIC is out of service for maintenance or other reasons. It does not mean it is necessary to perform the surveillances needed to demonstrate the operability of the RCIC System. If operability of the RCIC System cannot be verified, however, Specification 3.5.E.3 requires that an orderly shutdown be initiated and reactor pressure reduced to ≤ 150 psig within 24 hours.

Analysis of some station events credits HPCI being initially aligned to the Condensate Storage Tank (CST) and auto transferring to the Torus. Therefore, when not normally aligned to the CST the HPCI system is inoperable.

F. Automatic Depressurization System

The Automatic Depressurization System (ADS) consists of the four safety-relief valves and serves as a backup to the High Pressure Coolant Injection System (HPCI). ADS is designed to provide depressurization of the reactor coolant system during a small break loss-of-coolant accident if HPCI fails or is unable to maintain sufficient reactor water level. Since HPCI operability is required above 150 psig, ADS operability is also required above this pressure.

ADS operation reduces the reactor pressure to within the operating pressure range of the low pressure coolant injection and core spray systems, so that these systems can provide reactor coolant inventory makeup.

BASES: 3.5 (Cont'd)

G. Reactor Core Isolation Cooling System

The Reactor Core Isolation Cooling System (RCIC) is provided to maintain the water inventory of the reactor vessel in the event of a main steam line isolation and complete loss of outside power without the use of the emergency core cooling systems. The RCIC meets this requirement. Reference Section 14.5.4.4 FSAR. The HPCIS provides an incidental backup to the RCIC system such that in the event the RCIC should be inoperable no loss of function would occur if the HPCIS is operable.

In accordance with specification 3.5.G.2, if the RCIC System is inoperable and the HPCI System is verified to be operable, the RCIC System must be restored to operable status within 14 days during reactor power operation. In this condition, loss of the RCIC System will not affect the overall plant capability to provide makeup inventory at high reactor pressure since the HPCI System is the only high pressure system assumed to function during a loss of coolant accident. Operability of HPCI is therefore verified immediately when the RCIC System is inoperable during reactor power operation. This may be performed as an administrative check, by examining logs or other information, to determine if HPCI is out of service for maintenance or other reasons. It does not mean it is necessary to perform surveillances needed to demonstrate the operability of the HPCI System. If the operability of the HPCI System cannot be verified, however, Specification 3.5.G.3 requires that an orderly shutdown be initiated and reactor pressure reduced to ≤ 150 psig within 24 hours. For transients and certain abnormal events with no LOCA, RCIC (as opposed to HPCI) is the preferred source of makeup coolant because of its relatively small capacity, which allows easier control of the reactor water level. Therefore, a limited time (14 days) is allowed to restore the inoperable RCIC System to operable status.

Analysis of some station events credits RCIC being initially aligned to the CST and auto transferring to the Torus. Therefore, when not normally aligned to the CST the RCIC system is inoperable.

H. Minimum Core and Containment Cooling System Availability

The core cooling and containment cooling subsystems provide a method of transferring the residual heat following a shutdown or accident to a heat sink. Based on analyses, this specification assures that the core and containment cooling function is maintained with any combination of allowed inoperable components.

Operability of low pressure ECCS injection/spray subsystems is required during cold shutdown and refueling conditions to ensure adequate coolant inventory and sufficient heat removal capability for the irradiated fuel in the core in case of inadvertent draindown of the vessel. It is permissible, based upon the low heat load and other methods available to remove the residual heat, to disable all core and containment cooling systems for maintenance if the reactor is in cold shutdown or refueling and there are no operations with a potential for draining the reactor vessel (OPDRV). However, if OPDRVs are in progress with irradiated fuel in the reactor vessel, operability of low pressure ECCS injection/spray subsystems is required to ensure capability to maintain adequate reactor vessel water level in the event of an inadvertent vessel draindown. In this condition, at least 300,000 gallons of makeup water must be available to assure core flooding capability. In addition, only one diesel generator associated with one of the ECCS injection/spray

BASES: 3.5 (Cont'd)

subsystems is required to be operable in this condition since, upon loss of normal power supply, one ECCS subsystem is sufficient to meet this function.

The low pressure ECCS injection/spray subsystems consist of two core spray (CS) and two low pressure coolant injection (LPCI) subsystems. During cold shutdown and refueling conditions, each CS subsystem requires one motor driven pump, piping, and valves to transfer water from the suppression pool or condensate storage tank to the reactor pressure vessel (RPV). Also, during cold shutdown and refueling conditions, each LPCI subsystem requires one motor driven pump, piping, and valves to transfer water from the suppression pool to the RPV. Under these conditions, only a single LPCI pump is required per subsystem because of the larger injection capacity in relation to a CS subsystem. During shutdown and refueling conditions, LPCI subsystems may be considered operable during RHR system alignment and operation for decay heat removal, if those subsystems are capable of being manually realigned to the LPCI mode and are not otherwise inoperable. Because of low pressure and low temperature conditions during cold shutdown and refueling, sufficient time will be available to manually align and initiate LPCI subsystem operation to provide core cooling prior to postulated fuel uncovery.

I. Maintenance of Filled Discharge Pipe

Full discharge lines are required when the core spray subsystems, LPCI subsystems, HPCI and RCIC are required to be operable to preclude the possibility of damage to the discharge piping due to water hammer action upon a pump start.