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Christopher J. Wamser
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BVY 14-037

June 9, 2014

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

SUBJECT: Technical Specifications Proposed Change No. 309, Defueled Technical Specifications and Revised License Conditions for Permanently Defueled Condition - Supplement 2 (TAC No. MF3714)
Vermont Yankee Nuclear Power Station
Docket No. 50-271
License No. DPR-28

REFERENCES:

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Technical Specifications Proposed Change No. 309, Defueled Technical Specifications and Revised License Conditions for Permanently Defueled Condition," BVY 14-010, dated March 28, 2014 (TAC No. MF3714)

2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Technical Specifications Proposed Change No. 306 Eliminate Certain ESF Requirements during Movement of Irradiated Fuel," BVY 13-097, dated November 14, 2013 (TAC No. MF 3068) (ADAMS Accession No. ML13323A516)

3. Email, USNRC to Entergy Nuclear Operations, Inc. "Vermont Yankee RAI for LAR on Eliminate Certain ESF Requirements During Movement of Irradiated Fuel (TAC No. MF3068)," dated May 19, 2014

4. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Technical Specifications Proposed Change No. 306 Eliminate Certain ESF Requirements during Movement of Irradiated Fuel - Supplement 1 (TAC No. MF 3068)," BVY 14-036, dated June 9, 2014

Dear Sir or Madam:

By letter dated March 28, 2014 (Reference 1), Entergy Nuclear Operations, Inc. (ENO) proposed an amendment to Renewed Facility Operating License (OL) DPR-28 for Vermont Yankee Nuclear Power Station (VY). The proposed amendment would revise the VY OL and Technical Specifications (TS) to be consistent with the expected permanently shutdown and defueled condition of VY. The markups to the OL and TS provided in Reference 1 reflected other proposed changes to the TS that were submitted under separate requests, including those provided in

Reference 2, which would change the requirements associated with handling irradiated fuel and performing reactor core alterations. Specifically, the Reference 2 changes would eliminate operability requirements for secondary containment when handling sufficiently decayed irradiated fuel or a fuel cask and while performing core alterations.

In Reference 3, the NRC provided VY with a draft Request for Additional Information (RAI) regarding the TS changes proposed in Reference 2. In response to the draft RAI, ENO withdrew the proposed elimination of references to core alterations from the TS (Reference 4). Attachment 1 of this letter provides a justification for removal of the references to core alterations that were reintroduced into the TS by Reference 4.

The conclusions of the no significant hazards consideration and the environmental considerations contained in Reference 1 are not affected by, and remain applicable to, this supplement.

There are no new regulatory commitments made in this letter.

If you have any questions on this transmittal, please contact Mr. Philip Couture at 802-451-3193.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 9, 2014.

Sincerely,

CJW/plc

Attachment: 1. Description and Evaluation of Proposed Changes

cc: Mr. William M. Dean
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Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Change 309 - Supplement 2

Description and Evaluation of Proposed Changes

SUMMARY

By letter dated March 28, 2014 (Reference 1), Entergy Nuclear Operations, Inc. (ENO) proposed an amendment to Renewed Facility Operating License (OL) DPR-28 for Vermont Yankee Nuclear Power Station (VY). The proposed amendment would revise the VY OL and Technical Specifications (TS) to be consistent with the expected permanently shutdown and defueled condition of VY. The markups to the OL and TS provided in Reference 1 reflected other proposed changes to the TS that were submitted under separate requests, including those provided in Reference 2, which would change the requirements associated with handling irradiated fuel and performing reactor core alterations. Specifically, the Reference 2 changes would eliminate operability requirements for secondary containment when handling sufficiently decayed irradiated fuel or a fuel cask and while performing core alterations.

In Reference 3, the NRC provided VY with a Request for Additional Information (RAI) regarding the TS changes proposed in Reference 2. In response to the RAI, ENO withdrew the proposed elimination of references to core alterations from the TS (Reference 4). The following provides a justification for removal of the references to core alterations that were reintroduced into the TS by Reference 4.

DESCRIPTION AND BASIS FOR THE CHANGES

The following VY TS are affected by the reintroduction of references to core alterations in Reference 4:

- <u>TS Table 3.2.3, Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation Instrumentation</u>

  Footnote (d) [During Alteration of the Reactor Core] was proposed for deletion in Reference 2.

- <u>TS 3.7.B.4, Standby Gas Treatment System</u>

  TS 3.7.B.4.b was proposed to be revised by removing references to core alterations in Reference 2. TS 3.7.B.4.b.ii was proposed for deletion in Reference 2.

- <u>TS 3.7.C, Secondary Containment System</u>

  TS 3.7.C.4 was proposed to be revised by removing references to core alterations in Reference 2. TS 3.7.C.1.c and TS 3.7.C.4.b were proposed for deletion in Reference 2.

Justification for the removal of references to core alterations from the affected TS is provided by supplementing the basis for removal of TS Section 3/4.2, Protective Instrument Systems, and TS Section 3/4.7, Station Containment Systems, which were included with Reference 1. Changes are shown in underline/strikethrough format.

TS SECTION 3/4.2, PROTECTIVE INSTRUMENT SYSTEMS	
Current TS 3/4.2	Proposed TS 3/4.2
A. Emergency Core Cooling System (ECCS)	A. Deleted
B. Primary Containment Isolation	B. Deleted
C. Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation	C. Deleted
D. Deleted	D. Deleted
E. Control Rod Block Actuation	E. Deleted
F. Mechanical Vacuum Pump Isolation Instrumentation	F. Deleted
G. Post-Accident Monitoring Instrumentation	G. Deleted
H. Deleted	H. Deleted
I. Recirculation Pump Trip Instrumentation	I. Deleted
J. Deleted	J. Deleted
K. Degraded Grid Protective System	K. Deleted
L. Reactor Core Isolation Cooling (RCIC) System Actuation	L. Deleted

Basis

Existing TS Section 3/4.2, "Protective Instrument Systems," contains LCOs and SRs to assure and verify operability of protective instrumentation systems. Once VY dockets the certifications required by 10 CFR 50.82(a)(1), the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel, in accordance with 10 CFR 50.82(a)(2). Because the VY Part 50 license will no longer authorize emplacement or retention of fuel in the reactor vessel, protective instruments will not be required and these LCOs (and associated SRs) will not apply in a defueled condition. Therefore TS 3/4.2 is proposed for deletion in its entirety.

Emergency Core Cooling Systems (ECCS)

TS 3/4.2.A specifies the operability requirements for ECCS protective instrumentation. As discussed in 10 CFR 50.46(a)(1)(i), the requirement to have an ECCS does not apply to a nuclear power reactor facility for which the certifications required under § 50.82(a)(1) have been submitted. Therefore, the need for an associated protective instrumentation system is not required and this specification may be deleted.

Primary Containment Isolation

TS 3/4.2.B specifies the operability requirements for the primary containment isolation instrumentation, which automatically initiates closure of appropriate primary containment isolation valves (PCIVs). The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated DBAs. The FHA will be the only credible DBA possible in the permanently defueled condition. The FHA analysis does not rely on primary containment to mitigate the consequences of the FHA. Therefore, this specification may be deleted.

Reactor Building Ventilation and Standby Gas Treatment System

TS 3/4.2.C specifies the operability requirements for the reactor building ventilation isolation and Standby Gas Treatment System initiation instrumentation. This instrumentation automatically initiates closure of the Reactor Building Automatic Ventilation System Isolation Valves (RBAVSIVs) and starts the Standby Gas Treatment (SGT) System following DBAs requiring isolation of secondary containment.

Consistent with the change~~s~~ proposed to footnote~~s~~ (c) ~~and (d)~~ for Trip Functions 3 and 4 in TS Table 3.2.3 in Reference 2, this specification will no longer be needed once all fuel has been moved to the spent fuel pool and the 13 days have elapsed from the time of plant shutdown. In support of these changes, ENO has completed an FHA-based analysis using the guidelines detailed in Regulatory Guide 1.183. The analysis demonstrates that radiological doses at the exclusion area boundary, low population zone and in the control room from a FHA after 13 days following shutdown are within allowable limits without crediting secondary containment operability and operation of the standby gas treatment system. Elimination of footnote (d) for Trip Functions 3 and 4 in TS Table 3.2.3 is acceptable because the term "Alteration of the Reactor Core" is meaningless once the reactor has been permanently defueled.

Control Rod Block Actuation

TS 3/4.2.E specifies operability requirements for control rod block instrumentation. As discussed in the basis for removal of TS 3/4.3, this specification will not be required once the certifications required under 10 CFR 50.82(a)(1) have been submitted because there will no longer be a need for control rods to control core reactivity.

Mechanical Vacuum Pump Isolation Instrumentation

TS 3/4.2.F specifies the operability requirements for the mechanical vacuum pump isolation instrumentation. This instrumentation initiates an isolation of the mechanical vacuum pump following events in which main steam radiation monitors exceed a predetermined value. Tripping and isolating the mechanical vacuum pumps limits control room and offsite doses in the event of a control rod drop accident (CRDA). The CRDA will not be a credible DBA that can occur in the permanently defueled condition. Therefore, this specification may be deleted.

Post-Accident Monitoring Instrumentation

TS 3/4.2.G specifies the operability requirements for the post-accident monitoring (PAM) instrumentation. The purpose of this instrumentation is to display, in the control room, plant variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for DBAs. The parameters monitored by this instrumentation include Drywell Atmospheric Temperature, Drywell Pressure, Torus Pressure, Torus Water Level, Torus Water Temperature, Reactor Pressure, Reactor Vessel Water Level, Torus Air Temperature and Containment High Range Radiation Monitor. None of these parameters are used to provide information to operators during a FHA, which will be the only credible DBA in the permanently defueled condition. Therefore, this specification may be deleted.

Recirculation Pump Trip Instrumentation

TS 3/4.2.I specifies the operability requirements for the Recirculation Pump Trip instrumentation. The Anticipated Transient Without Scram (ATWS) Prevention/Mitigation System initiates a Recirculation Pump Trip (RPT), adding negative reactivity, following events in which a scram does not but should occur, to lessen the effects of an ATWS event. An ATWS will not be a credible event once the plant is in the permanently defueled condition. Therefore, this specification may be deleted.

Degraded Grid Protective System

TS 3/4.K specifies the operability requirements for the Degraded Grid Protective System instrumentation. This instrumentation monitors the 4.16 kV emergency buses. If the monitors determine that insufficient voltage is available and an ECCS initiation signal is present, the buses are disconnected from the offsite power sources and connected to the onsite EDG power sources. As discussed in the basis for removal of TS 3/4.5 and 3/4.10, both ECCS and EDGs will no longer be required once the plant is in the permanently defueled condition. Therefore, this specification will no longer be necessary and may be deleted.

Reactor Core Isolation Cooling (RCIC) System Actuation

TS 3/4.2.L specifies the operability requirements for the RCIC System instrumentation. As discussed in the basis for removal of TS 3/4.5, once VY is in the permanently defueled condition, the conditions for which RCIC is required to operate will no longer be possible. Therefore, this specification will no longer be necessary and may be deleted.

Summary

The protection and monitoring functions of the various instrumentation systems have been designed to ensure safe operation of the reactor and to mitigate the effects of reactor related design basis accidents. Once VY dockets the certifications required by 10 CFR 50.82(a)(1), the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel, in accordance with 10 CFR 50.82(a)(2). Therefore, this Specification will not be needed and will no longer be applicable once VY is in the permanently defueled condition. Based on the above, the proposed deletion of TS Section 3/4.2 in its entirety is acceptable.

TS SECTION 3/4.7, STATION CONTAINMENT SYSTEMS	
Current TS 3/4.7 A. Primary Containment B. Standby Gas Treatment System C. Secondary Containment System D. Primary Containment Isolation Valves E. Reactor Building Automatic Ventilation System Isolation Valves (RBAVSIVs)	Proposed TS 3/4.7 A. Deleted B. Deleted C. Deleted D. Deleted E. Deleted

Basis

The existing TS Section 3/4.7, "Station Containment Systems," contains LCOs and SRs that assure the integrity of the primary and secondary containment systems. Because the VY Part 50 license will no longer authorize emplacement or retention of fuel in the reactor vessel, the LCOs (and associated SRs) that do not apply in a defueled condition are being proposed for deletion.

Primary Containment

TS 3/4.7.A specifies the operability requirements for primary containment. The safety objective of the primary containment system in conjunction with core standby cooling systems is to provide the capability, in the event of the postulated LOCA, to limit the release of fission products to the plant environs so that off-site doses would be well below the values specified in 10 CFR 50.67. Once VY is in the permanently defueled condition, the only postulated DBA that will be able to occur is the FHA. The FHA analysis does not rely on primary containment to mitigate the consequences of an FHA. Therefore, this specification will no longer be necessary and may be deleted.

Standby Gas Treatment System

TS 3/4.7.B specifies the operability requirements for the Standby Gas Treatment (SGT) system. This system is designed to filter and exhaust the Reactor Building atmosphere to the stack during secondary containment isolation conditions, with a minimum release of radioactive materials from the Reactor Building to the environs.

With both trains of the SGT inoperable, the changes proposed by Reference 2 would prohibit movement of "recently irradiated" fuel, core alterations and operations with the potential to drain the reactor vessel. Following approval of the changes proposed by Reference 2, after 13 days of decay following shutdown, the nuclear fuel will no longer be considered to be "recently irradiated." The other conditions that would be prohibited (core alterations and operations with the potential to drain the reactor vessel) in the event that both trains of the SGT system are inoperable will not be applicable following permanent removal of the fuel from the reactor vessel. Therefore, these prohibited conditions will no longer be applicable.

The new FHA-based analysis provided in Reference 2 shows that after 13 days of fuel decay, secondary containment and the SGT system will not be required to mitigate the consequences of the FHA, which is the only DBA that will be possible in the permanently defueled condition. As a result, this specification will no longer be necessary and may be deleted.

Secondary Containment System

TS 3/4.7.C specifies the operability requirements for secondary containment. The secondary containment is designed to minimize any ground level release of radioactive materials which might result from a serious accident. The Reactor Building provides secondary containment during reactor operation, when the drywell is sealed and in service; the Reactor Building provides primary containment when the reactor is shutdown and the drywell is open, as during refueling.

In order for secondary containment integrity to be met, the secondary containment must function properly in conjunction with the operation of the SGT system to ensure that the required vacuum can be established and maintained. This means that the reactor building is intact with at least one door in each access opening closed, and all reactor building automatic ventilation system isolation valves are operable or the affected penetration flow path is isolated.

Following approval of the changes proposed by Reference 2, after 13 days of decay following shutdown, the nuclear fuel will no longer be considered to be "recently irradiated." The other conditions requiring that secondary containment integrity be met (core alterations and operations with the potential to drain the reactor vessel) will not be applicable following permanent removal of the fuel from the reactor vessel. Therefore, the conditions requiring secondary containment integrity will no longer be applicable and secondary containment will not be required to mitigate the consequences of the FHA, which is the only DBA that will be possible in the permanently defueled condition. As a result, this specification will no longer be necessary and may be deleted.

Primary Containment Isolation Valves

TS 3/4.7.D specifies the operability requirements for the primary containment isolation valves. The primary containment design includes lines that penetrate the primary containment with different containment isolation valve configurations including double and single valve isolation. Automatic initiation is required to minimize the potential leakage paths from the containment in the event of a LOCA. Once VY is in the permanently defueled condition, the only postulated DBA that will be able to occur is the FHA. The FHA analysis does not rely on primary containment to mitigate the consequences of an FHA. Therefore, this specification will no longer be necessary and may be deleted.

Reactor Building Automatic Ventilation System Isolation Valves (RBAVSIVs)

3/4.7.E specifies the operability requirements for the RBAVSIVs when secondary containment integrity is required. The function of the RBAVSIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated DBAs. The operability requirements for RBAVSIVs help ensure that an adequate secondary containment boundary is maintained during and after an accident by minimizing potential paths to the environment. The RBAVSIVs must be operable (or the penetration flow path isolated) to ensure secondary containment integrity and to limit the potential release of fission products to the environment.

Following approval of the changes proposed by Reference 2, after 13 days of decay following shutdown, the nuclear fuel will no longer be considered to be "recently irradiated" and secondary containment integrity will no longer be required to mitigate the consequences of the FHA, which is the only DBA that will be possible in the permanently defueled condition. As a result, this specification will no longer be necessary and may be deleted.

Summary

The analyzed DBA that remains applicable to VY in the permanently shut down and defueled condition is a FHA. Section 5.0(a) of the new FHA-based analysis in Reference 2 shows that, following 13 days of fuel decay time after reactor shutdown, the dose consequences are acceptable without relying on SSCs remaining functional for accident mitigation during and following the event. The exception to this is the continued function of the passive spent fuel pool structure. Proposed changes to TS 3.7.B.4 and TS 3.7.C described in Reference 2 are under NRC review. Following approval of the changes proposed in Reference 2 and following 13 days of fuel decay, the specifications associated with secondary containment will no longer be necessary.

Once VY dockets the certifications required by 10 CFR 50.82(a)(1), the 10 CFR Part 50 license will no longer authorize operation of the reactor or placement or retention of fuel in the reactor vessel, in accordance with 10 CFR 50.82(a)(2). Therefore, the specifications associated with primary containment will not be needed once VY is in the permanently defueled condition and is no longer applicable.

Based on the above, the proposed deletion of TS Section 3/4.7 in its entirety is acceptable.

References:

1. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Technical Specifications Proposed Change No. 309, Defueled Technical Specifications and Revised License Conditions for Permanently Defueled Condition," BVY 14-010, dated March 28, 2014 (TAC No. MF3714)

2. Letter, Entergy Nuclear Operations, Inc. to USNRC, "Technical Specifications Proposed Change No. 306 Eliminate Certain ESF Requirements during Movement of Irradiated Fuel," BVY 13-097, dated November 14, 2013 (TAC No. MF 3068) (ADAMS Accession No. ML13323A516)

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