

December 23, 2003

Mr. Michael Kansler
President
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440 Hamilton Avenue
White Plains, NY 10601

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - ISSUANCE OF
AMENDMENT RE: LOGIC SYSTEM FUNCTIONAL TEST (TAC NO. MB7214)

Dear Mr. Kansler:

The Commission has issued the enclosed Amendment No. 216 to Facility Operating License DPR-28 for the Vermont Yankee Nuclear Power Station, in response to your application dated January 9, 2003.

The amendment changes the Technical Specifications (TSs), to revise the definition of a Logic System Functional Test, delete the definition of a Simulated Automatic Actuation, and clarify Surveillance Requirement 4.5.G.1.a regarding simulated automatic actuation testing. Associated TS Bases are being revised accordingly.

A copy of the related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Robert M. Pulsifer, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosures: 1. Amendment No. 216 to
License No. DPR-28
2. Safety Evaluation

cc w/encls: See next page

Vermont Yankee Nuclear Power Station

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Vermont Yankee Nuclear Power Station

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Robert M. Pulsifer, Project Manager, Section 2
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2. Safety Evaluation

cc w/encls: See next page

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ENTERGY NUCLEAR VERMONT YANKEE, LLC
AND ENTERGY NUCLEAR OPERATIONS, INC.
DOCKET NO. 50-271
VERMONT YANKEE NUCLEAR POWER STATION
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 216
License No. DPR-28

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (the licensees), dated January 9, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-28 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 216, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA by D Roberts for/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: December 23, 2003

ATTACHMENT TO LICENSE AMENDMENT NO. 216

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

1
4
80a
107

Insert

1
4
80a
107

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 216 TO FACILITY OPERATING LICENSE NO. DPR-28
ENERGY NUCLEAR VERMONT YANKEE, LLC
AND ENERGY NUCLEAR OPERATIONS, INC.
VERMONT YANKEE NUCLEAR POWER STATION
DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated January 9, 2003, Entergy Nuclear Vermont Yankee, LLC, and Entergy Nuclear Operations, Inc. (the licensee), submitted a request to amend the Vermont Yankee Nuclear Power Station Technical Specifications (TSs). The proposed amendment would revise the TSs to change the definition of a Logic System Functional Test (LSFT), delete the definition of a Simulated Automatic Actuation, and clarify Surveillance Requirement (SR) 4.5.G.1.a regarding simulated automatic actuation testing. Associated TS Bases would be revised accordingly.

The specific changes are as follows:

1.1 TS Definition 1.0.H, "Logic System Functional Test"

The current TS Definition 1.0.H reads as follows:

Log[SIC] System Functional Test - A logic system functional test means a test of all relays and contacts of a logic circuit from sensor to activated device to insure all components are operable per design intent. Where possible, action will go to completion, i.e., pumps will be started and valves opened.

The revised TS Definition 1.0.H reads as follows:

Logic System Functional Test - A logic system functional test shall be a test of all logic components required for operability of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify operability. The logic system functional test may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.

1.2 TS Definition 1.0.W, "Simulated Automatic Actuation"

The proposed change is to delete the current TS Definition 1.0.W, which reads as follows:

Simulated Automatic Actuation - Simulated automatic actuation means applying a simulated signal to the sensor to actuate circuit in question.

1.3. TS SR 4.5.G.1.a

The current TS SR 4.5.G.1.a reads as follows:

A simulated automatic actuation test (testing valve operability) of the RCIC [reactor core isolation cooling] system shall be performed during each refueling outage.

The revised TS SR 4.5.G.1.a reads as follows:

A simulated automatic actuation test of the RCIC system shall be performed during each refueling outage.

1.4 TS Bases 4.2

The current TS Bases 4.2 reads as follows:

Since logic circuit tests result in the actuation of plant equipment, testing of this nature was done while the plant was shut down for refueling. In this way, the testing of equipment would not jeopardize plant operation.

This Specification is a periodic testing program which is based upon the overall testing of protective instrumentation systems, including logic circuits as well as sensor circuits. Table 4.2 outlines the test, calibration, and logic system functional test schedule for the protective instrumentation systems.

The revised TS Bases 4.2 reads as follows:

Since logic circuit tests may result in the actuation of plant equipment, testing of this nature is generally performed during a refueling outage. In this way, the testing of equipment should not jeopardize plant operation.

These SRs provide a periodic testing program for protective instrumentation to demonstrate that systems and components function satisfactorily and include schedules for performing functional tests, calibrations, and logic system functional tests.

2.0 REGULATORY EVALUATION

The U.S. Nuclear Regulatory Commission (NRC or the Commission) staff finds that the licensee's letter dated January 9, 2003, stated that the proposed TS changes are in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a.

The staff based its acceptance on the regulatory requirements of 10 CFR 50.55a, "Codes and Standards," as well as assuring that the regulatory requirements of 10 CFR 50.36, "Technical Specifications," are still being met.

The definition section of the TS has historically been provided to help maintain consistency within the TS as well as with industry practices. The requirements of 10 CFR 50.36 do not require a definition section in the TS.

3.0 TECHNICAL EVALUATION

3.1 TS Definition 1.0.H

The licensee stated that the definition of an LSFT is being revised to be consistent with NUREG-1433, "Standard Technical Specifications for General Electric Boiling Water Reactors (BWR/4)," Revision 2, June 2001 and to clarify that an LSFT:

1. involves testing of all logic components required for operability of a logic circuit
2. is performed by injecting a signal as close to the sensor as practicable
3. excludes testing the actuated device as part of the LSFT
4. may be performed as any series of sequential, overlapping, or total system steps such that the entire logic system is tested

To eliminate ambiguity and unnecessary testing of actuated devices (e.g., pumps and valves) as part of an LSFT in the current TS, testing of these devices is specifically excluded from the requirements of an LSFT in the revised TS. An administrative error (misspelling of "logic") is also being corrected in the heading of the TS definition.

As per the revised TS, LSFTs should test for operability of all relays, contacts, trip units, and solid-state logic elements from as close to the sensor as practicable up to, but not necessarily including, the actuated device. An LSFT may consist of a single, integrated test, but may also be performed as a series of tests, provided that when combined, the entire logic system is tested. To ensure that no part of the logic is overlooked, the procedures for these partial functional tests ensure that an overlap occurs between where one section of testing ends and the next section begins. Logic testing is performed once per operating cycle, or every refueling outage, except for the reactor protection system.

The licensee also stated that, as per regulations (i.e., 10 CFR 50.55a) and current TSs, system functional tests that verify pump and valve operability are performed on a nominal quarterly basis in accordance with the in-service testing program requirements. Industry reliability studies for boiling water reactors show that, overall, safety system reliabilities are dominated not by the reliabilities of the logic system, but by the reliabilities of the mechanical components such as pumps and valves. Consequently, pumps and valves are usually tested more frequently than the LSFT and, therefore, need not be tested as part of the LSFT. By letter dated December 11, 1998, the NRC approved similar LSFT definition changes for the James A. FitzPatrick Nuclear Power Station. This change is also consistent with NUREG-1433. On this basis, the staff finds the proposed change to the LSFT definition acceptable and that pump and valve operability is verified through the inservice testing program.

3.2 TS Definition 1.0.W

The licensee stated that the simulated automatic actuation tests for certain systems (i.e., High Pressure Coolant Injection, Reactor Core Isolation Cooling (RCIC), Low Pressure Coolant Injection, Core Spray, and Automatic Depressurization System) are performed once per operating cycle or during refueling outages. Simulated automatic actuation tests verify the ability of a system to perform its design automatic initiation function by confirming the proper operation of electrical, electronic, and mechanical components of a system, but not all system components are necessarily tested during the simulated actuation.

The licensee has proposed to delete the definition 1.0.W "Simulated Automatic Actuation," from the TS. The licensee's justification for this deletion is based on the fact that this definition does not add any value to the TS. It should be noted that this definition is also not included in NUREG-1433 even though the term is used.

The deletion of the definition is acceptable, because 10 CFR 50.36 does not require definitions in the TS. A simulated automatic actuation is part of an LSFT. The performance of an LSFT may include a simulated automatic actuation because it is one method that may be used to do an LSFT. The LSFT is defined in the TS and it was clarified in Section 3.1 above. The deletion of this definition does not adversely affect any LCOs or SRs. The staff considers this as an administrative change, as it does not result in a substantive change in operability requirements and is, therefore, acceptable.

3.3 TS SR 4.5.G.1.a

The current TS SR 4.5.G.1.a includes "testing valve operability" during a simulated automatic actuation test. The licensee stated that a reasonable interpretation of "testing valve operability" in conjunction with a simulated automatic actuation is a verification that automatic valves in the flow-path actuate to their correct position (or remain in the correct position). A simulated automatic actuation test is part of the LSFT; however, testing movement of a valve need not be part of the LSFT because certain valves (e.g., check valves) may not be capable of moving during the LSFT without actual coolant flow, and the valves themselves are adequately tested within the scope of the quarterly RCIC flow tests per applicable industrial codes and standards.

Inservice tests are required to ensure that the RCIC pump and valves are operable to perform their intended safety functions. Compliance with industry codes and standards, required by 10 CFR 50.55a and TS Section 4.6.E, requires the testing of all ASME Code Class 1, 2, and 3 valves in accordance with Section XI of the ASME code. Compliance with these requirements is adequate to ensure the required valve testing is performed to verify system operability. Periodic testing of RCIC valves in accordance with the applicable industrial codes and standards (as required by TS SR 4.5.G.1.b, SR 4.5.G.1.c, and SR 4.6.E) is sufficient to demonstrate operability, and additional valve testing as part of the simulated automatic actuation test of RCIC is overly burdensome. RCIC valve operability testing is performed quarterly and during startups in conjunction with RCIC pump tests. Therefore, additional details or requirements for valve operability testing do not need to be included in TS 4.5.G.1.a.

Since the LSFT, which includes simulated automatic actuation, demonstrates the operability of the required initiation logic for a specific channel, and inservice tests demonstrate that RCIC pumps and valves are operable to perform their intended safety function, the proposed change to the TS does not alter any requirements of the TS, but defines where the particular part of the system function is tested. Because inservice tests demonstrate that RCIC pumps and valves are operable, and this change does not modify the criteria for inclusion in the TS by requirements imposed by 10 CFR 50.36, the staff finds this change acceptable.

3.4 TS Bases 4.2

Bases changes are being made to clarify the meaning and intent of SRs for protective instrumentation and the staff has no objection.

On the basis of the above regulatory and technical evaluations of the licensee's justifications for these TS changes, the staff concludes that the licensee's proposed TS changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Vermont State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 [and changes SRs]. The NRC staff has determined that the amendment involves no significant increase in amounts, and no significant change in the types of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (68 FR 5674). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: S. Mazumdar

Date: December 23, 2003