

July 11, 2000

Mr. Samuel L. Newton
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, VT 05302-7002

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - ISSUANCE OF
AMENDMENT RE: REVISED TESTING OF ACTIVATED CHARCOAL
(TAC NO. MA6904)

Dear Mr. Newton:

The Commission has issued the enclosed Amendment No. 189 to Facility Operating License DPR-28 for the Vermont Yankee Nuclear Power Station, in response to your application dated October 18, 1999, as supplemented May 11, 2000.

The amendment revises the Technical Specifications (TSs) to require a revised activated charcoal testing methodology in accordance with the guidance provided by Generic Letter 99-02, "Laboratory Testing of Nuclear Grade Activated Charcoal." Related bases have also been changed. A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/RA/

Richard P. Croteau, 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. 189 to
License No. DPR-28
2. Safety Evaluation

cc w/encls: See next page

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ACCESSION NO: ML003730031

*Previously Concurred

OFFICE	PDI-2/PM	PDI-2/LA	SPLB	OGC	PDI-2/SC
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VERMONT YANKEE NUCLEAR POWER CORPORATION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 189
License No. DPR-28

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by the Vermont Yankee Nuclear Power Corporation (the licensee) dated October 18, 1999, as supplemented May 11, 2000, 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. 189, 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/

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: July 11, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 189

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 area of change.

Remove

153

166

170

Insert

153

166

170

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 189 TO FACILITY OPERATING LICENSE NO. DPR-28
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated October 18, 1999, as supplemented May 11, 2000, the Vermont Yankee Nuclear Power Corporation (the licensee) submitted a request to amend the Vermont Yankee Nuclear Power Station (Vermont Yankee) Technical Specifications (TSs). The amendment would revise the activated charcoal testing methodology required by the TSs in accordance with the guidance provided by Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear Grade Activated Charcoal." Specifically,

TSs page 153, Specification 3.7.B.2.b – would be revised to modify the methyl iodide removal acceptance criteria from $\geq 95\%$ to $\geq 97.5\%$ and modify the specified temperature and relative humidity from 130 °C and 95% relative humidity (RH) to 30 °C and 70% RH, respectively.

In addition, the following bases changes would be made:

TSs page 166, Bases for Specification 3.7.B – would be revised to conform with changes proposed to Specification 3.7.B.2.b.

TSs page 170, Bases – would be revised to conform with charcoal testing changes previously outlined.

The May 11, 2000, supplement provided clarifying information that did not expand the scope of the application as published in the Federal Register or change the Nuclear Regulatory Commission (NRC) staff's proposed no significant hazards consideration determination.

2.0 EVALUATION

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittals. In addition, the staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for Vermont Yankee. Based on its review, the staff adopts the TER. In view of the above, and because the NRC staff considers ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in safety-related ventilation systems, the NRC staff finds that the proposed TS

changes satisfy the actions requested in GL 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, and are acceptable.

The NRC received a letter from the American Society of Test and Materials in response to a March 8, 2000, Federal Register Notice (65 FR 12286) related to revising testing standards in accordance with ASTM D3803-1989 for laboratory testing of activated charcoal in response to Generic Letter (GL) 99-02. ASTM notified the NRC that the 1989 standard is out of date and should be replaced by D3803-1991 (1998). The staff acknowledges that the most current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, it was decided, for consistency purposes, to have all of the nuclear reactors test to the same standard (ASTM D3803-1989) because, prior to GL 99-02 being issued, approximately one third of nuclear reactors had technical specifications that referenced ASTM D3803-1989 and there are no substantive changes between the 1989 and 1998 versions.

3.0 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 comment.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the 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 (64 FR 62716). 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.

5.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Croteau

Date: July 11, 2000

**TECHNICAL EVALUATION REPORT
BROOKHAVEN NATIONAL LABORATORY
FOR THE OFFICE OF NUCLEAR REACTOR REGULATION
DIVISION OF SYSTEMS SAFETY AND ANALYSIS
PLANT SYSTEMS BRANCH
RELATED TO AMENDMENT TO FACILITY OPERATING LICENSE NO. DPR-28
VERMONT YANKEE NUCLEAR POWER CORPORATION
VERMONT YANKEE NUCLEAR POWER STATION
DOCKET NO. 50 - 271**

1.0 INTRODUCTION

By letter dated November 29th, 1999 (BVY 99-154), Vermont Yankee Nuclear Power Corporation submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for the Vermont Yankee Nuclear Power Station. By letter dated October 18, 1999 (BVY 99-132), Vermont Yankee Nuclear Power Corporation requested changes to the Technical Specifications (TS) Section 3.7.2.B and associated bases for the Standby Gas Treatment System (SBGTS), for the Vermont Yankee Nuclear Power Station. The proposed changes would revise the TS surveillance testing of the safety related ventilation system charcoal to meet the requested actions of GL 99-02. By letter dated May 11, 2000 (BVY 00-46), Vermont Yankee Nuclear Power Corporation provided supplemental information concerning the proposed TS change and the response to the actions requested in GL 99-02.

2.0 BACKGROUND

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TS to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the staff alerted licensees that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with their current licensing bases with respect to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether their TS reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TS do not reference ASTM D3803-1989 were requested to either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol.

3.0 EVALUATION

3.1 Laboratory Charcoal Sample Testing Surveillance Requirements

The current and proposed laboratory charcoal sample testing TS surveillance requirements for the Standby Gas Treatment System (SGTS) are shown in Table 1 and Table 2, respectively.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30°C is acceptable because it is consistent with ASTM D3803-1989. The proposed test relative humidity (RH) of 70% is also acceptable, because SGTS is equipped with a safety-related heater which maintains less than or equal to 70% RH during accident conditions. This is consistent with the actions requested in GL 99-02.

The credited efficiency for radioactive organic iodine for the SGTS is 95%. The proposed test penetration for radioactive methyl iodide for the SGTS is $\leq 2.5\%$. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor is acceptable because it ensures that the efficiency credited in the accident analysis is still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

The licensee stated in the May 11, 2000 letter that the system face velocity at the charcoal adsorber sections for the SGTS is 34 fpm and it will not exceed 44 fpm (110% of 40 fpm) at the maximum system flow rates specified in the TS. This is acceptable because it ensures that the testing will be consistent with the operation of the ventilation system during accident conditions. Therefore, it is not necessary to specify the face velocity in the proposed TS change. This is consistent with the August 23, 1999 errata to GL 99-02.

4.0 CONCLUSION

On the basis of its evaluation, BNL recommends that the NRC staff consider the proposed TS changes to be acceptable.

Principal Contributor: Richard E. Deem and Anthony Fresco
Date: June 14, 2000

VERMONT YANKEE NUCLEAR POWER STATION

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description						Current TS Requirements					
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency of organic iodine	Test Penetration of methyl iodide	Safety Factor	Test Standard	Test Temp (° C)	Test RH	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velocity (fpm)							
3.7.2.B	Standby Gas Treatment System (SBGTS)	2	≥0.25	34	95%	<5%	Not stated (1)*	ANSI N510-1975**	130	95%	Not stated

* Safety Factor calculated from stated credited efficiency and test penetration.

** Test standard stated in TS Bases.

VERMONT YANKEE NUCLEAR POWER STATION

TABLE 2 - PROPOSED TS REQUIREMENTS											
System Description						Proposed TS Requirements					
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency(organic) iodide)	Test Penetration (methyl iodide)	Safety Factor	Test Standard	Test Temp (° C)	Test RH	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velocity (fpm)							
3.7.2.B	Standby Gas Treatment System (SBGTS)	2	≥0.25	34	95%	<2.5%	2	ASTM D3803-1989	30	70%*	Not stated (40)

* TS surveillance requirement 4.7B.1.b requires demonstration at least once every operating cycle, not to exceed 18 months, that the SGTS inlet heater input be at least 9 kW.

Vermont Yankee Nuclear Power Station

cc:

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