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Docket No. 50-271

Yankee Atomic Electric Company
 ATTN: Mr. G. Carl Andognini
 Assistant to the Vice President
 20 Turnpike Road
 Westboro, Massachusetts 01581

Gentlemen:

The Commission has issued the enclosed Amendment No. 15 to Facility License No. DPR-28 for the Vermont Yankee Nuclear Power Station. This amendment includes Change No. 26 to the Technical Specifications and is in response to Vermont Yankee's request dated May 6, 1975.

This amendment incorporates changes to the testing requirements for the standby gas treatment system. During our review we discussed with your staff certain modifications to the proposed changes which they agreed were necessary for clarification. These modifications have been made. Changes were made to the Bases to provide guidance on recommended filter replacement quality levels and the use of removable charcoal samplers for laboratory test samples.

Copies of our related Safety Evaluation and the Federal Register Notice relating to this action also are enclosed.

Sincerely,

Handwritten initials and number 1

Dennis L. Ziemann, Chief
 Operating Reactors Branch #2
 Division of Reactor Licensing

Enclosures:

- Amendment No. 15
w/Change No. 26
- Safety Evaluation
- Federal Register Notice

cc w/enclosures:
 See next page

Handwritten initials

deposited 9/10

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DATE →	7/29/75	7/29/75	8/17/75	8/27/75	8/12/75

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New England Coalition on Nuclear
Pollution

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Putney, Vermont 05346

Brooks Memorial Library
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Chairman, Vermont Public
Service Board
120 State Street
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Mr. Raymond H. Puffer
Chairman
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Vernon, Vermont 05354

additional cc: see next page

Yankee Atomic Electric Company

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cc w/enclosures and VY's filing
dtd. 5/6/75:

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Public Service Board
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Mr. Wallace Stickney
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Boston, Massachusetts 02203

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

VERMONT YANKEE NUCLEAR POWER CORPORATION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 15
License No. DPR-28

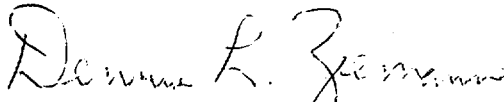
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Vermont Yankee Nuclear Power Corporation (the licensee) dated May 6, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's 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; and
 - 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.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B of Facility License No. DPR-28 is hereby amended to read as follows:

"B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 26."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing

Attachment:
Change No. 26 to the
Technical Specifications

Date of Issuance: August 28, 1975

ATTACHMENT TO LICENSE AMENDMENT NO. 15

CHANGE NO. 26 TO THE TECHNICAL SPECIFICATIONS

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Delete pages 130, 131 and 145 from the Appendix A Technical Specifications and insert the same numbered attached replacement pages. The changed areas on the revised pages are shown by marginal lines.

3.7 LIMITING CONDITIONS FOR OPERATION

B. Standby Gas Treatment System

1. Except as specified in Specification 3.7.B.3 below, both circuits of the standby gas treatment system and the diesel generators required for operation of such circuits shall be operable at all times when secondary containment integrity is required.
2.
 - a. The results of the in-place cold DOP halogenated hydrocarbon tests at design flows on HEPA and charcoal filter banks shall show >99% DOP removal and >99% halogenated hydrocarbon removal when tested in accordance with ANSI N510 - 1975. | 26
 - b. The results of laboratory carbon sample analysis shall show >95% radioactive methyl iodide removal when tested in accordance with ANSI N510 - 1975 (130°C, 95% R.H.). | 26
 - c. System fans shall be shown to operate within ±10% of design flow when tested in accordance with ANSI N510 - 1975. | 26
3. From and after the date that one circuit of the standby gas treatment system is made or found to be operable for any reason, reactor operation is permissible only during the succeeding seven days unless such circuit is sooner made operable, provided that during such seven days all active components of the other standby gas treatment circuit shall be operable.

4.7 SURVEILLANCE REQUIREMENTS

B. Standby Gas Treatment System

1. At least once per operating cycle, not to exceed 18 months, the following conditions shall be demonstrated. | 26
 - a. Pressure drop across the combined HEPA and charcoal filter banks is less than 6 inches of water at 1500 cfm.
 - b. Inlet heater input is at least 9 kW when tested in accordance with ANSI N510 - 1975. | 26
 - c. Air distribution is uniform within ±20% across HEPA filters and charcoal adsorbers when tested in accordance with ANSI N510 - 1975. | 26
2.
 - a. The tests and sample analysis of Specification 3.7.B.2 shall be performed initially and at least once per operating cycle not to exceed 18 months or after every 720 hours of system operation and following painting, fire or chemical release in any ventilation zone communicating with the system. | 26
 - b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank.
 - c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal filter bank.

4. If this condition cannot be met, procedures shall be initiated immediately to establish the conditions listed in Specifications 3.7.C.1(a) through (d), and compliance shall be completed within 24 hours thereafter.

- d. Each circuit shall be operated with the heaters on at least 10 hours every month.
- e. Test sealing of gaskets for housing doors downstream of the HEPA filters and adsorbers shall be performed in accordance with ANSI NS10 - 1975 at each test performed for compliance with Specification 4.7.B.2.a.

3. a. At least once per operating cycle automatic initiation of each branch of the standby gas treatment system shall be demonstrated.
- b. At least once per operating cycle manual operability of the bypass valve for filter cooling shall be demonstrated.
- c. When one circuit of the standby gas treatment system becomes inoperable the other circuit shall be demonstrated to be operable immediately and daily thereafter.

26

C. Secondary Containment System

1. Integrity of the secondary containment system shall be maintained during all modes of plant operation except when all of the following conditions are met.
 - a. The reactor is subcritical and Specification 3.3.A is met and

C. Secondary Containment System

1. Surveillance of secondary containment shall be performed as follows.
 - a. A preoperational secondary containment capability test shall be conducted after isolating the reactor building and placing either standby gas treatment system filter train in operation. Such tests shall demonstrate the capability to maintain a 0.15 inch of water vacuum under calm wind ($2 < u < 5$ mph) condition with a filter drain flow rate of not more than 1500 cfm.

4.7 B
& C (cont'd)

The test frequencies are adequate to detect equipment deterioration prior to significant defects, but the tests are not frequent enough to load the filters, thus reducing their reserve capacity too quickly. That the testing frequency is adequate to detect deterioration was demonstrated by the tests which showed no loss of filter efficiency after 2 years of operation in the rugged shipboard environment on the NS Savannah (ORNL 3726). Pressure drop tests across filter sections are performed to detect gross plugging of the filter media. Considering the relatively short time that the fans may be run for test purposes, plugging is unlikely, and the test interval is reasonable. Such heater tests will be conducted once during each operating cycle. Considering the simplicity of the heating circuit, the test frequency is sufficient. Air distribution tests will be conducted once during each operating cycle.

The in-place testing of charcoal filters is performed using a halogenated hydrocarbon, which is injected into the system upstream of the charcoal filters. Measurements of the challenge gas concentration upstream and downstream of the charcoal filters is made. The ratio of the inlet and outlet concentrations gives an overall indication of the leak tightness of the system. Although this is basically a leak test, since the filters have charcoal of known efficiency and holding capacity for elemental iodine and/or methyl iodine, the test also gives an indication of the relative efficiency of the installed system.

High-efficiency particulate air filters are installed before and after the charcoal filter to minimize potential release of particulates to the environment and to prevent clogging of the iodine filters. An efficiency of 99% is adequate to retain particulates that may be released to the reactor building following an accident. This will be demonstrated by testing with DOP as testing medium.

The efficiencies of the particulate and charcoal filters are sufficient to prevent exceeding 10CFR100 limits for the accidents analyzed. The analysis of post accident hydrogen purge assumed a charcoal filter efficiency of 95%. Hence requiring in-place test efficiencies of 99% for these filters provides adequate margin. The laboratory methyl iodide removal test is performed at 95% relative humidity to assure adequate margin over the design relative humidity of 70%.

The test interval for filter efficiency was selected to minimize plugging of the filters. In addition, testing for methyl iodide removal efficiency will be demonstrated. This will be done either by removal of a charcoal sample cartridge which contains charcoal equivalent to the bed thickness or removing one adsorber tray from the system and using the charcoal therein, after mixing, to obtain at least two samples equivalent to the bed thickness. Any HEPA filters found defective should be replaced with filters qualified according to Regulatory Position C.3.d of Regulatory Guide 1.52. If laboratory test results are unacceptable, all charcoal adsorbent in the system should be replaced with charcoal adsorbent qualified according to Regulatory Guide 1.52.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 15 TO LICENSE NO. DPR-28

(CHANGE NO. 26 TO THE TECHNICAL SPECIFICATIONS)

VERMONT YANKEE NUCLEAR POWER CORPORATION

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

INTRODUCTION

By letter dated May 6, 1975, Vermont Yankee Nuclear Power Corporation (VYNPC) requested a change to the Technical Specifications appended to Facility Operating License No. DPR-28 for the Vermont Yankee Nuclear Power Station (VYNPS). The proposed change involves:

1. Changes to the testing requirements on the standby gas treatment system (SGTS) for the laboratory carbon sample analysis which include an increase in the relative humidity from 70 percent to 95 percent during the test and for the system and in-place filter tests which specify a recognized ANSI standard.
2. Clarification of intent to show performance capability of system fan and uniformity of flow in system within a range of values.
3. Change to test and sample analysis frequency from each year to each operating cycle.
4. Changes to Bases to provide guidance on recommended filter replacement quality levels and the use of removable charcoal samplers for laboratory test samples.

These proposed changes were in response to our letter dated March 6, 1975 to VYNPC in which we concluded that the proposed modified Containment Air Dilution (CAD) system was acceptable provided the Standby Gas Treatment System (SGTS) was capable of increasing its effectiveness for removing the postulated radioiodine releases during a loss-of-coolant accident (LOCA) and containment purging following a LOCA from the current level of 90 percent for inorganic and 70 percent for organic iodines up to 95 percent for both inorganic and organic iodine. These increased efficiencies could be credited to the installed SGTS by more restrictive acceptance testing specifications without requiring system modifications.

DISCUSSION

During our review of the proposed changes, we determined that additional changes to related technical specifications were necessary to implement and clarify the proposed changes. Our evaluation of the changes proposed by the licensee and those added by the staff which were discussed and agreed to by the licensee is as follows:

1. Specification 3.7.B.2.a - The only change to this specification is to require that the tests be performed in accordance with the recognized ANSI standard, ANSI N510 - 1975.
2. Specification 3.7.B.2.b - The major change to this specification for laboratory carbon sample test conditions is the increase in the relative humidity (R.H.) for the air test media from 70 percent to 95 percent. If the results from the carbon sample analysis under the prescribed test conditions show a methyl iodide removal efficiency of at least 95 percent, we can assume that the charcoal adsorber in the SGTS from which the sample was taken would remove at least 95 percent of both inorganic and organic iodines contained in the air being filtered by the system under postulated accident conditions. The use of radioactive methyl iodide (organic iodine) in the test media assures that the capability of the charcoal to remove elemental (inorganic) iodine under postulated accident conditions will be equal to or greater than the efficiency measured under test conditions. The use of 95 percent humidity during the test will assure that the removal of organic iodine under the accident conditions with 70 percent humidity will be equal to or greater than the efficiency measured under test conditions. The reduction of the relative humidity to 70 percent under accident conditions is assured by the heaters in the SGTS. Assigning these removal efficiency values to the SGTS during the postulated LOCA and containment purging following a LOCA would reduce the combined thyroid dose at the low population zone to well within the 10 CFR Part 100 guideline doses as discussed in our letter dated March 6, 1975, to the licensee approving the proposed modifications to the CAD system. These removal efficiency values would be applicable to the SGTS under all postulated accident conditions thereby reducing the postulated thyroid doses from any postulated accident for VYNPS by at least a factor of 2 from those thyroid doses previously evaluated.

The remaining change to this specification is related to the incorporation of test requirements specified by a recognized ANSI standard, ANSI N510 - 1975 and has no effect on the SGTS operation or capability. An acceptable

air temperature range during testing of greater than or equal to 150°C as stated in the ANSI standard has replaced the single value of 190°F. All of these changes were necessary to permit some flexibility in test conditions during the test without reducing the reliability of the test results.

3. Specification 3.7.B.2.c - An acceptable air flow rate has been specified as a range within 10 percent of design flow rate rather than a greater than or equal to 90 percent of design flow. This change in acceptable fan performance level does not reduce the effective operation or capability of the system. The change places an upper as well as a lower performance limit on fan operation to define a range of normal system operation. Operation of the system outside of this range would indicate abnormal system operation which should require an investigation of the cause. The tests are required to be performed in accordance with the recognized ANSI standard, ANSI N510 - 1975.
4. Specification 4.7.B.1 - A limitation of 18 months has been placed on the allowable time between demonstration tests regardless of the period of any operating cycle. The normal operation cycle is up to 15 months but conditions could exist in which actual calendar time between refueling would be greater. The change assures that the demonstration tests will be performed within a given period of time.

The addition of the plus and minus sign to modify the phrase "within 20 percent" for the allowable uniform air distribution variance in Specification 4.7.B.1:c is to clarify the intent that the specification permits a 20 percent variance in either direction.

The tests are required to be performed in accordance with the recognized ANSI standard, ANSI N510 - 1975.

Specification 4.7.B.2.a - The same limitation of 18 months has been placed on the specified tests analysis regardless of actual operating cycle time. The requirement to perform such tests and analysis within a specified time period of one year rather than during each operating cycle has been revised to be consistent with test requirements for similar systems. The change does reflect operating experience and has made the frequency of tests and analysis consistent with actual practice.

Test sealing of the gaskets are required to be performed in accordance with the recognized ANSI standard, ANSI N510 - 1975.

5. Bases to 4.7.B - The bases were changed to reflect the changes in the testing requirements of the charcoal adsorbers. A change was made to permit the use of removable charcoal samplers for laboratory test samples as well as a total adsorber tray from the system. We reviewed the data provided by VYNPC in their May 6, 1975 submittal and determined that the installation of removable charcoal samplers would allow representative samples of charcoal to be removed for laboratory testing. The purpose of using a whole adsorber tray to obtain the test samples was to assure a representative sample. Since either method would obtain a representative sample, we concluded that the proposed removable charcoal sampler was acceptable. The other changes in the bases provide guidance to the licensee on recommended replacement of defective HEPA filters or unacceptable charcoal adsorbers in accordance with the regulatory recommendations stated in Regulatory Guide 1.52. All of these recommendations have been included in the bases associated with the testing specifications of the SGTS.

CONCLUSIONS

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: AUG 28 1975

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-271

VERMONT YANKEE NUCLEAR POWER CORPORATION

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

Notice is hereby given that the U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 15 to Facility Operating License No. DPR-28 issued to Vermont Yankee Nuclear Power Corporation which revised Technical Specifications for operation of the Vermont Yankee Nuclear Power Station, located near Vernon, Vermont. The amendment is effective as of its date of issuance.

The amendment permits changes to the testing requirements for the standby gas treatment system, makes changes to clarify the intent of the current requirement on system fan performance and flow distribution and changes the frequency for tests and sample analysis to be consistent with the operating cycle of the reactor. Changes were made to the Bases to provide guidance on recommended filter replacement quality levels and the use of removable charcoal samplers for laboratory test samples.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations.

in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

For further details with respect to this action, see (1) the application for amendment dated May 6, 1975, (2) Amendment No. 15 to License No. DPR-28, with Change No. 26 and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Brooks Memorial Library at 224 Main Street, Brattleboro, Vermont 05301. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland, this 28th day of August, 1975.

FOR THE NUCLEAR REGULATORY COMMISSION



Dennis L. Ziemann, Chief
Operating Reactors Branch #2
Division of Reactor Licensing