

Docket No. 50-271

JAN 19 1979

Mr. Robert H. Groce  
Licensing Engineer  
Yankee Atomic Electric Company  
20 Turnpike Road  
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Distribution

✓ Docket  
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OI&E (5)  
BJones (4)  
BScharf (10)  
DBrinkman  
DEisenhut

ACRS (16)  
OPA (CMiles)  
DRoss  
RDiggs  
TERA  
JRBuchanan  
GKnighton

Dear Mr. Groce:

The Commission has issued the enclosed Amendment No. 49 to Facility License No. DPR-28 for the Vermont Yankee Nuclear Power Station. This amendment changes the limiting conditions for operation and surveillance requirements in your Technical Specifications for the Standby Gas Treatment System. These changes are in response to your submittals dated June 8, 1976 and May 11, 1978. To meet our requirements, certain changes to the Technical Specifications, which you proposed, were necessary. These changes have been discussed with and concurred in by your staff.

Copies of the Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

Original signed by  
Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Enclosures:

- 1. Amendment No. 49 to DPR-28
- 2. Safety Evaluation
- 3. Notice

cc w/enclosures: See page 2

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DATE →	1/18/79	1/19/79	1/19/79	1/17/79	1/18/79

Mr. Robert H. Groce

- 2 -

January 19, 1979

cc: Mr. J. M. Abbey  
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New England Coalition on Nuclear  
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Mr. Raymond H. Puffer  
Chairman  
Board of Selectman  
Vernon, Vermont 05354

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Mr. Robert H. Groce

- 3 -

January 19, 1979

cc: Public Service Board  
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Director, Technical Assessment  
Division  
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Arlington, Virginia 20460

U. S. Environmental Protection Agency  
Region I Office  
ATTN: EIS COORDINATOR  
JFK Federal Building  
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. 49  
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 11, 1978, 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:

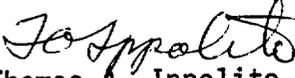
(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 49, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

  
Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: January 19, 1979

ATTACHMENT TO LICENSE AMENDMENT NO. 49

FACILITY OPERATING LICENSE NO. DPR-28

DOCKET NO. 50-271

Revise Appendix A as follows:

Remove

130  
131  
140

Replace

130  
131  
140

## 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 and halogenated hydrocarbon tests at design flows on HEPA and charcoal filter banks shall show  $>99\%$  DOP removal and  $>99\%$  halogenated hydrocarbon removal.
  - b. The results of laboratory carbon sample analysis shall show  $\geq 95\%$  radioactive methyl iodide removal. (130°C, 95% R.H.)
  - c. System fans shall be shown to operate within  $\pm 10\%$  of design flow.
3. From and after the date that one circuit of the standby gas treatment system is made or found to be inoperable 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.
  - a. Pressure drop across the combined HEPA and charcoal filter banks is less than 6 inches of water at 1500 cfm  $\pm 10\%$ .
  - b. Inlet heater input is at least 9 kW.
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, and following painting, fire or chemical release in any ventilation zone communicating with the system, while the system is operating, that could contaminate the HEPA filters or charcoal adsorbers.
    - 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.

In addition, the sample analysis of Specification 3.7.B.2.b and the halogenated hydrocarbon test shall be performed after every 720 hours of system operation.

- d. Each circuit shall be operated with the heaters on at least 10 hours every month.
- e. An ultrasonic leak test shall be performed on the gaskets sealing the housing panels downstream of the HEPA filters and adsorbers at least once per operating cycle not to exceed 18 months. If the ultrasonic test indicates the presence of a leak, the condition will be evaluated and the gasket repaired or replaced as necessary.

## 3.7 LIMITING CONDITIONS FOR OPERATION

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.

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

## 4.7 SURVEILLANCE REQUIREMENTS

- f. DOP and halogenated hydrocarbon test shall be performed following any design modification to the standby gas treatment system housing that could have an effect on the filter efficiency.
  - g. An air distribution test demonstrating uniformity within  $\pm 20\%$  across the HEPA filters and charcoal adsorbers shall be performed if the SBGTS housing is modified such that air distribution could be affected.
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.

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 train flow rate of not more than 1500 ofm.

### 3.7.A (cont'd)

The requirement to inert the containment is based on the recommendation of the Advisory Committee on Reactor Safeguards. This recommendation, in turn, is based on the assumption that several percent of the zirconium in the core will undergo a reaction with steam during the loss-of-coolant accident. This reaction would release sufficient hydrogen to result in a flammable concentration in the primary containment building. The oxygen concentration is therefore kept below 4% to minimize the possibility of hydrogen combustion.

General Electric has estimated that less than 0.1% of the zirconium would react with steam following a loss-of-coolant due to operation of emergency core cooling equipment. This quantity of zirconium would not liberate enough hydrogen to form a combustible mixture.

### B. and C. Standby Gas Treatment System and Secondary Containment System

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. Because the secondary containment is an integral part of the complete containment system, secondary containment is required at all times that primary containment is required except, however, for initial fuel loading and low power physics testing.

The standby gas treatment 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. To insure that the standby gas treatment system will be effective in removing radioactive contaminants from the reactor building air, the system is tested periodically to meet the intent of ANSI N510-1975. Both standby gas treatment fans are designed to automatically start upon containment isolation and to maintain the reactor building pressure to approximately a negative 0.15 inch water gauge pressure; all leakage should be in-leakage. Should the fan fail to start, the redundant alternate fan and filter system is designed to start automatically. Each of the two fans has 100% capacity. This substantiates the availability of the operable circuit and results in no added risk; thus, reactor operation or refueling operation can continue. If neither circuit is operable, the plant is brought to a condition where the system is not required.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 49 TO LICENSE NO. DPR-28

VERMONT YANKEE NUCLEAR POWER CORPORATION

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

Introduction

By letters dated June 8, 1976 and May 11, 1978, Vermont Yankee Nuclear Power Corporation (licensee) proposed changes to Section 3/4.7.B, Standby Gas Treatment System (SGTS), of the Technical Specifications for Vermont Yankee Nuclear Power Station. The changes proposed in the June 8, 1976 letter are superceded by the changes proposed in the May 11, 1978 letter. This amendment would change the limiting conditions of operation and the surveillance requirements in the Vermont Yankee Technical Specifications for an engineered safety feature (ESF) ventilation filter system.

Evaluation

We have reviewed and evaluated the proposed changes to Sections 3/4.7.B of the Vermont Yankee Technical Specifications. The licensee has requested that the phrase "in accordance with ANSI N510-1975" be deleted from Specifications 3.7.B.2.a, 3.7.B.2.b, 3.7.B.2.c and 4.7.B.1.b because the SGTS was not designed to be tested in accordance with this standard. ANSI N510-1975 is the industry standard for testing of nuclear air-cleaning systems such as the Vermont Yankee SGTS. Because the SGTS was designed and fabricated several years before the standard was written, there are operational problems when the SGTS is tested in strict accordance with ANSI N510-1975. The licensee will meet the intent of the standard when testing the SGTS and has proposed words stating this in the basis of the Technical Specifications.

We agree with the licensee that there are operational problems testing the ventilation filter systems in accordance with ANSI N510-1975 since the system was not designed to be tested in this manner. However, if the system is tested in a manner to meet the intent of the standard as proposed, this will provide adequate assurance that the SGTS will operate as described in the Safety Evaluation (SER) dated June 1971 for Vermont Yankee Nuclear Power Station. On this basis, we conclude these proposed changes are acceptable.

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The licensee has requested that the required temperature and relative humidity of the laboratory test of a carbon sample from the SGTS be deleted from Specification 3.7.B.2.b. The measured methyl iodide removal efficiency of the carbon will depend on the temperature and relative humidity of the laboratory test. Therefore, it is not acceptable to delete the values for these parameters from Specification 3.7.B.2.b. The licensee has agreed not to delete the values of the required temperature and relative humidity for the laboratory test of a carbon sample from Specification 3.7.B.2.b.

The licensee has requested that the word "operable" in Specification 3.7.B.3 be replaced by the word "inoperable." This proposed change is to correct a typographical error. We conclude the proposed correction is acceptable.

The licensee proposed to delete Specification 4.7.B.1.c and, in its place, add a new Specification 4.7.B.2.g. Specification 4.7.B.1.c required an air distribution test at least once per operating cycle, not to exceed 18 months. Specification 4.7.B.2.g requires the same air distribution test but only if the SGTS housing is modified such that the air distribution is affected. An air distribution test is necessary because severe maldistribution and stratification of airflow in the housing of a high efficiency ventilation filter system could result in degraded filter performance. With degraded filter performance, the accident filter performance would be less than the design filter performance. It is not necessary to test the air distribution in a ventilation filter system housing such as the Vermont Yankee SGTS every operating cycle. The air distribution will not significantly change unless the SGTS housing has been modified. Therefore, the proposed changes are acceptable.

The licensee has proposed to delete the phrase "or after every 720 hours of system operation" from Specification 4.7.B.2.a and to add the sentence "In addition, the sample analysis of Specification 3.7.B.2.b and the halogenated hydrocarbon test shall be performed after every 720 hours of system operation" to Specification 4.7.B.2.c. The licensee states that it has been established that the charcoal sampling done in conformance with Specification 3.7.B.2.b does not adversely affect the leak tightness of the HEPA filter bank and that the 720 hour testing requirement should only apply to Specification 3.7.B.2.b and the halogenated hydrocarbon leak test. We agree with the licensee.

The surveillance requirement to test the SGTS every 720 hours of system operation was written to require testing of the SGTS charcoal's ability to remove iodine (Specification 3.7.B.2.b) prior to significant degradation of the charcoal. The halogenated hydrocarbon leak test is required to

show that the bypass flow around the charcoal is still within acceptable values. This would provide adequate assurance that the SGTS would have at least the minimum filter efficiency assigned the system in the SER dated June 1971.

Removing charcoal for the iodine removal efficiency test will not affect the HEPA filter bank because the charcoal sample can be removed independent of the HEPA filters. Therefore, it is not necessary to test the HEPA filter bank every 720 hours of system operation and the proposed change is acceptable.

Specification 4.7.B.2.a requires the licensee to perform the tests and sample analysis of Specification 3.7.B.2 "following painting, fire and chemical release in any ventilation zone communicating with the system." The licensee proposes to qualify this requirement with the additional words: "while the system is operating that could contaminate the HEPA filters or charcoal adsorbers." With no air flow in the system, degrading paint or chemicals would not reach the filter housing in amounts sufficient to cause appreciable filter degradation. Also, the tests specified in section 3.6.B.2 should not be required in instances of minimal amounts of painting or chemical release. This qualification of the requirements of Specification 4.7.B.2.a does not change the intent of the requirement and will require the licensee to test the SGTS when it is necessary to do so. We conclude that the proposed change is acceptable.

The licensee has proposed an additional specification requiring DOP and halogenated hydrocarbon tests following any design modification to the SGTS that could have an effect on the filter efficiency of the system. This specification is being added to insure that an unacceptable bypass leakage through the HEPA filter section of the charcoal adsorber section does not occur as a result of any changes made to the SGTS. This requirement will provide additional assurance that the SGTS will have at least the filter efficiency assigned it in the SER dated June 1971. We conclude, therefore, the proposed change is acceptable.

The licensee proposed to change Specification 4.7.B.2.e to require an ultrasonic leak test on the SGTS housing door panel gaskets downstream of the HEPA filters and adsorbers at least once per operating cycle not to exceed 18 months. If this test should indicate a leak through these gaskets, the gaskets would be repaired or replaced. The SGTS is within the secondary containment upstream of the fans. During a LOCA, radioactive iodine may exist outside the housing. It may be drawn into the SGTS housing when the SGTS is operating because the interior of the SGTS housing will be at a lower pressure than its surrounding environment when its fan is operating. Radioiodine leaking into the housing upstream of the HEPA filters and adsorbers will be filtered whereas radioiodine leaking into the housing downstream, will not.

In the original proposal dated June 8, 1976, the licensee proposed to delete the present Specification 4.7.B.2.e, which required testing of gaskets for housing doors downstream on HEPA filters and adsorbers, because there was no operating surveillance test for gaskets and housing doors in the Standard ANSI N-510, "Testing of Nuclear Air Cleaning Systems." The licensee stated that although ANSI N-510 describes a housing leak test, the test requires modifications to the SGTS housing and is only called for in the standard as a one time acceptance. At the present time, the necessary equipment to modify the SGTS for a housing leak test does not exist. By letter dated May 11, 1978, the licensee proposed an ultrasonic leak test, of the gaskets sealing the housing door panels downstream of the HEPA filters and adsorbers, which the licensee stated can indicate a leak rate of less than 1 cc/sec (less than 0.0002% flow). A leak rate of ten times this magnitude would still be less than the maximum leak rate allowed for the adsorber frame in the Technical Specifications. In addition, the licensee proposes to change the surveillance frequency for testing the gaskets by the deletion of the requirement to test the gaskets (1) after every 720 hours of system operation and (2) following painting, fire or chemical release in any ventilation zone communicating with the SGTS system.

The proposed surveillance frequency for testing the gaskets of once per operating cycle not to exceed 18 months, is the same as that for other similar tests of the SGTS (e.g., pressure drop across the combined HEPA and charcoal filter banks and inlet heater input). All of these tests are of characteristics of the SGTS which should not change rapidly with time. Gasket leak tightness is not expected to change in the event of painting, fire, or chemical release in a ventilation zone communicating with the SGTS therefore the requirements for testing after such events may be deleted.

Based on the above, we conclude that the proposed Technical Specification 4.7.B.2.e is acceptable.

Based on our review, we also conclude that the proposed changes as we have modified them, agree with the requirements of our model Technical Specifications for engineered safety feature ventilation filter systems for operating reactors and of Positions C.5 (in-place testing criteria) and C.6 (laboratory testing criteria for activated charcoal) of Regulatory Guide 1.52, Revision 2, Design, Testing and Maintenance Criteria For Atmospheric Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants. Therefore, we conclude the proposed changes are acceptable.

Environmental Consideration

We have determined that this amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that this amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement, negative declaration, or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because this amendment 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 amendment 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.

Dated: January 19, 1979

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-271VERMONT YANKEE NUCLEAR POWER CORPORATIONNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY  
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 49 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 (the facility) located near Vernon, Vermont. The amendment is effective as of its date of issuance.

The amendment revises the Technical Specifications relating to the standby gas treatment systems.

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 was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of the amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of the amendment.

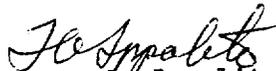
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For further details with respect to this action, see (1) the application for amendment dated June 8, 1976, as supplemented May 11, 1978, (2) Amendment No. 49 to License No. DPR-28, and (3) the Commission's related Safety Evaluation. All of these items 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, 224 Main Street, Brattleboro, Vermont.

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 Operating Reactors.

Dated at Bethesda, Maryland this 19th day of January 1979.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Thomas A. Ippolito, Chief  
Operating Reactors Branch #3  
Division of Operating Reactors