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October 4, 2002
BVY 02-62

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

**Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
Technical Specification Proposed Change No. 253
Integrated Leak Rate Test Interval Extension**

Pursuant to 10CFR50.90, Vermont Yankee (VY) hereby proposes to amend its Facility Operating License, DPR-28, by incorporating the attached proposed change into the VY Technical Specifications (TS). The proposed change would allow for a single extension to the ten-year frequency of VY's next primary containment integrated leak rate test (ILRT or Type A test). This proposed change would permit the existing ILRT frequency to be extended from ten-years to approximately 10.6 years.

This proposed change to Section 6.7.C of our TS, would avoid the necessity of performing a Type A test 12 months before the 10th year anniversary of the completion of the last Type A test (April 1995). If granted, this extension of the period from 10 years to approximately 10.6 years will result in an interval of approximately 127 months between the successive tests. In terms of refueling outages (RFO), this extension would move the performance of the next ILRT from RFO 24 to RFO 25. This request is similar in nature to the license amendment authorized by the NRC on December 29, 1994 (Accession Number 9501090321) for the Nine Mile Point Unit 1.

Attachment 1 to this letter contains supporting information and the safety assessment of the proposed change. Attachment 2 contains the determination of no significant hazards consideration. Attachment 3 provides the marked-up version of the current Technical Specification pages. Attachment 4 is the retyped Technical Specification pages.

VY has reviewed the proposed Technical Specification change in accordance with 10CFR50.92 and concludes that the proposed change does not involve a significant hazards consideration.

VY has also determined that the proposed change satisfies the criteria for a categorical exclusion in accordance with 10CFR51.22(c)(9) and does not require an environmental review. Therefore, pursuant to 10CFR51.22(b), the preparation of an environmental impact statement or environmental assessment is not warranted.

In order to facilitate outage planning, approval of this application is requested by May 15, 2003 to support Refuel Outage 24, presently scheduled for April 2004. VY requests a period of up to 60 days following receipt of the license amendment to implement the changes.

A017

If you have any questions on this transmittal, please contact Mr. Thomas B. Silko at (802) 258-4146.

Sincerely,



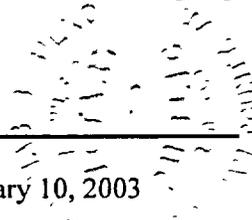
Jay K. Thayer
Site Vice President – Vermont Yankee

STATE OF VERMONT)
)ss
WINDHAM COUNTY)

Then personally appeared before me, Jay K. Thayer, who being duly sworn, did state that he is Site Vice President of Vermont Yankee Nuclear Power Station, that he is duly authorized to execute and file the foregoing document and that the statements therein are true to the best of his knowledge and belief.



Thomas B. Silko, Notary Public
My Commission Expires February 10, 2003



Attachments

- cc: USNRC Region 1 Administrator
- USNRC Resident Inspector - VYNPS
- USNRC Project Manager - VYNPS
- Vermont Department of Public Service

Docket No. 50-271
BVY 02-62

Attachment 1

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 253

Integrated Leak Rate Test Interval Extension

Supporting Information and Safety Assessment of Proposed Change

SUPPORTING INFORMATION

Purpose

The proposed change would allow for a single extension to the ten-year frequency of VY's next primary containment integrated leak rate test (ILRT). This proposed change would permit the existing ILRT frequency to be extended from ten years to approximately 10.6 years.

The proposed revision to Section 6.7.C of our TS, would avoid the necessity of performing a Type A test 12 months before the 10th year anniversary of the completion of the last Type A test (April 1995). If granted, this extension of the period from 10 years to 10.6 years will result in an interval of approximately 127 months between the successive tests. In terms of refueling outages (RFO), this extension would move the performance of the next ILRT from RFO 24 to RFO 25.

Background

VY's Technical Specifications Section 6.7.C, specify that the primary containment leak rate testing program shall be in accordance with the guidelines contained within Regulatory Guide 1.163, entitled "Performance Based Containment Leak-Test Program," dated September 1995. Regulatory Guide 1.163 specifies that NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J" provides methods acceptable to the NRC (Staff) for complying with the provisions of Option B. NEI 94-01 specifies that Type A testing shall be performed during a period of reactor shutdown at a frequency of at least once per 10 years based upon acceptable performance history (VY has an acceptable performance history). Section 9.1 of NEI 94-01 specifies that the intervals for Type A testing may be extended by up to 15 months. However, it continues by stating "This option should be used only in cases where refueling schedules have been changed to accommodate other factors." The position of Section 9.1 was re-affirmed in the response to Question 37 in the Appendix J Workshop¹ Question and Answers issued March 19, 1996 by the NEI Task Force on Appendix J stated below:

Question 37-B: Also, if a 10 year type A interval falls between refuel outages, how long may the interval be extended?

Response 37-B: NEI 94-01, Section 9.1, provides for extending the intervals for the Type A tests by up to 15 months, not 25%. This option should be used only in cases where refueling schedules have been changed to accommodate other factors. The Type A test should be scheduled for the outage preceding the 10 year anniversary of the last Type A test.

Based on a conservative application of NEI 94-01 and the published Questions and Answers, Vermont Yankee believes that the 15 month extension would not apply in our particular circumstance. Accordingly, due to this conservative interpretation, VY is requesting a schedular exemption from the administrative restriction for the scheduling of the Type A test.

Proposed Change and Reason for Change

VY's TS Section 6.7.C, "Primary Containment Leak Rate Testing Program" currently states:

A program shall be established to implement the leak rate testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B as modified by approved

¹ NEI Appendix J Workshop, Questions and Answers, dated December 7-8, 1995.

exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, entitled "Performance Based Containment Leak-Test Program," dated September 1995.

The proposed change would revise this section by adding the following phrase after the end of the above sentence:

, as modified by the following exception to NEI 94-01, Rev 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J":

Section 9.2.3: The first Type A test after the April 1995 Type A test shall be performed no later than November 2005.

This proposed amendment to the TS takes a one-time exception to the 10-year frequency of the performance-based leakage rate testing program for Type A test as documented by NEI 94-01. The exception will allow ILRT testing within approximately 10.6 years from the last ILRT which was performed in April 1995. This application represents a cost beneficial licensing change. The ILRT imposes significant expense and hardship to the plant while the differential safety benefit of performing the test within 10 years, versus 10.6 years, is minimal. Scheduling the Type A test during RFO 25 would permit the incorporation of other long term outage events that could be worked concurrent with refueling activities and the Type A test.

Updated Final Safety Analysis Report (FSAR)

VY FSAR Section 5.2 describes the Primary Containment System and specifically, Section 5.2.5.1 describes the Primary Containment Integrity and Leak-tightness.

SAFETY ASSESSMENT

Implementing 10CFR50, Appendix J, Option B:

Primary containment provides an essentially leak-tight barrier against the uncontrolled release of radioactivity into the environment following a design basis accident. The testing requirements of 10CFR50, Appendix J, provide assurance that leakage from the primary containment, including systems and components that penetrate the containment, does not exceed the allowable leakage values specified in the Technical Specifications.

The limitation of containment leakage provides assurance that the containment will perform its design function following a design basis accident. Effective October 26, 1995, 10CFR50, Appendix J, was revised to allow licensees to choose to perform containment leakage testing under Option A, "Prescriptive Requirements" or Option B, "Performance-Based Requirements." VY's License Amendment #152² permitted implementation of 10CFR50, Appendix J, Option B, for the Type A containment integrated leak rate test as modified by approved exemptions, and Regulatory Guide (RG) 1.163. RG 1.163 specifies a method acceptable to the NRC for complying with Option B by approving the use of NEI 94-01 and ANSI/ANS 56.8, subject to several regulatory positions in the guide.

² Reference USNRC letter to Vermont Yankee Nuclear Power Corporation, NVY 98-24, "Issuance of Amendment No. 152 to Facility Operating License No. DPR-28, Vermont Yankee Nuclear Power Station (TAC No. M99264)," dated February 26, 1998.

Exceptions to the requirements of RG 1.163, are allowed by 10CFR50, Appendix J, Option B, Section V.B, "Implementation," which states: The Regulatory Guide or other implementing document used by a licensee, or other applicant for an operating license, to develop a performance based leakage-testing program must be included, by general reference, in the plant Technical Specifications. The submittal for Technical Specification revisions must contain justification, including supporting analyses, if the licensee chooses to deviate from methods approved by the Commission and endorsed in a regulatory guide.

Therefore, this application does not require an exemption to 10CFR50, Appendix J, Option B.

The adoption of the Option B performance-based containment leakage rate testing for Type A testing did not alter the basic method by which Appendix J leakage rate testing is performed; however, it did alter the frequency at which Type A, B, and C containment leakage tests must be performed. Under the performance-based option of 10CFR50, Appendix J, test frequency is based upon an evaluation that reviews "as-found" leakage history to determine the frequency for leakage testing which provides assurance that leakage limits will be maintained. The changes to Type A test frequency did not directly result in an increase in containment leakage. Similarly, the proposed change to the Type A test frequency will not directly result in an increase in containment leakage.

The allowed frequency for Type A testing was based upon a generic evaluation documented in NUREG-1493. NUREG-1493 made the following observations with regard to decreasing the test frequency:

- "Reducing the Type A (ILRT) testing frequency to one per twenty years was found to lead to an imperceptible increase in risk. The estimated increase in risk is small because ILRTs identify only a few potential leakage paths that cannot be identified by Type B and C testing, and the leaks that have been found by Type A tests have been only marginally above the existing requirements. Given the insensitivity of risk to containment leakage rate, and the small fraction of leakage detected solely by Type A testing, increasing the interval between ILRT testing has minimal impact on public risk."
- "While Type B and C tests identify the vast majority (greater than 95%) of all potential leakage paths; performance-based alternatives are feasible without significant risk impacts. Since leakage contributes less than 0.1 percent of overall risk under existing requirements, the overall effect is very small."

The surveillance frequency for Type A testing in NEI 94-01 is at least once per ten years based on an acceptable performance history (i.e., two consecutive periodic Type A tests at least 24 months apart where the calculated performance leakage rate was less than $1.0L_a$, and consideration of the performance factors in NEI 94-01, Section 11.3). Based on the results of the April 1992 and April 1995 ILRTs, the current interval for Vermont Yankee is once every ten years.

Regulatory Guide 1.163 Containment Visual Examinations

VY has established procedures for performing visual examination of the accessible surfaces of the containment for detection of structural problems. RG 1.163, Regulatory Position C.3 specifies that these examinations should be conducted prior to initiating a Type A test and during two other outages before the next Type A test if the interval for the Type A test has been extended to ten years, in order to allow for early detection of evidence of structural deterioration. These visual examinations have been completed, with no significant defects noted to date.

It is noted that a visual inspection is also conducted in accordance with the Containment Inservice Inspection requirements, per 10CFR50.55a(b)(2)(vi) / Subsection IWE of Section XI of the ASME Code.

Plant Operational Performance / Industry Experience

VY is a boiling water reactor contained in a Mark I primary containment. During power operation, the primary containment atmosphere is inerted with nitrogen to ensure that no external sources of oxygen are introduced into containment. The containment inerting system is used during the initial purging of the primary containment prior to continued power operation and provides a supply of makeup nitrogen to maintain primary containment oxygen concentration within Technical Specification limits. As a result, the Drywell is maintained at a slightly positive pressure during power operation (the torus is maintained at a slightly negative pressure). Primary containment pressure is continuously indicated and periodically monitored in the control room. Although this feature of the VY containment design does not challenge the structural and leak tight integrity of the primary containment system at post-accident pressure, the fact that the containment system is continuously pressurized and is periodically monitored provides assurance that gross containment leakage that may develop during power operation will be detected.

While VY has had a very good record with regard to ILRT, it is also valuable to learn from industry experience. Accordingly, VY constantly reviews industry lessons learned and would be aware of issues that could accelerate degradation of containment integrity.

Test Interval Extension

The application of a maximum of 10 years between Type A tests is an administrative time limit not predicated on any safety or risk restraint. Presently, a Type A test may be extended up to 15 months to accommodate changes in refueling outage schedules. A test presently scheduled for the 10th anniversary could be conducted no later than 11.25 years from the last test date. The safety and risk significance of this extension has already been incorporated into the models used to determine the acceptability of the periodicity of testing. The VY extension request that the Type A test be conducted during RFO 25, presently scheduled for October 2005, is bounded by the 15 months allowable extension for other reasons.

Test History and Configurations

The last two Type A tests at Vermont Yankee were conducted in 1992 and in 1995. The results of both tests were less than 50% of the allowable limit of 0.8 wt%/day. Additionally, there have been no permanent or temporary modifications to the containment structure, liner, or penetrations since the last Type A test that could adversely affect the Type A test results. No modifications that require a Type A test are planned prior to the 2005 refueling outage, when the next Type A test will be performed under this proposed change. Any unplanned modifications to the containment prior to the next scheduled Type A test would be subject to the special testing requirements of Section IV.A of Appendix J. There have been no pressure or temperature excursions in the containment which could have adversely affected containment integrity. There is no anticipated addition or removal of plant hardware within the primary containment which could affect leak-tightness.

Summary

VY proposes a one time extension to the 10-year service interval requirement for a Primary Containment Integrated Leakage Rate Test as specified in Surveillance Requirement 6.7.C, from an interval of 10 years to an interval of approximately 10.6 years. Actual test results of the previous

Type A tests for the current service period showed no degradation in the ability of the containment to maintain leakage at or below the required limits. Type B and C Local Leak Rate Tests will continue to be performed at the frequency required by the Technical Specifications, with repairs being made as necessary. The absence of containment degradation and the performance of Type B and C testing provides reasonable assurance that an extension for the 10 year service period by approximately 7 months will not jeopardize the ability of the containment to maintain leakage at or below the required Type A limits.

Attachment 2

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 253

Integrated Leak Rate Test Interval Extension

Determination of No Significant Hazards Consideration

Determination of No Significant Hazards Consideration

Description of amendment request:

The proposed change would allow for a single extension to the ten-year frequency of VY's next primary containment integrated leak rate test (ILRT). This proposed change would permit the existing ILRT frequency to be extended from ten-years to approximately 10.6 years.

The proposed revision to Section 6.7.C of our TS, would avoid the necessity of performing a Type A test 12 months before the 10th year anniversary of the completion of the last Type A test (April 1995). If granted, this extension of the period from 10 years to approximately 10.6 years will result in an interval of approximately 127 months between the successive tests.

Basis for no significant hazards determination:

Pursuant to 10CFR50.92, Vermont Yankee (VY) has reviewed the proposed change and concludes that the change does not involve a significant hazards consideration since the proposed change satisfies the criteria in 10CFR50.92(c).

1. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed revision to Technical Specification 6.7.C "Primary Containment Leak Rate Testing Program" involves a one-time extension to the current interval for Type A containment testing. The current test interval of 10 years would be extended on a one-time basis to no longer than approximately 10.6 years from the last Type A test. The proposed Technical Specification change does not involve a physical change to the plant or a change in the manner in which the plant is operated or controlled. The reactor containment is designed to provide an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment for postulated accidents. As such, the reactor containment itself and the testing requirements invoked to periodically demonstrate the integrity of the reactor containment exist to ensure the plant's ability to mitigate the consequences of an accident, and do not involve the prevention or identification of any precursors of an accident. Therefore, the proposed Technical Specification change does not involve a significant increase in the probability of an accident previously evaluated.

The proposed change involves only the extension of the interval between Type A containment leak rate tests. Type B and C containment leak rate tests will continue to be performed at the frequency currently required by plant Technical Specifications. Industry experience has shown, as documented in NUREG1493, that Type B and C containment leakage tests have identified a very large percentage of containment leakage paths and that the percentage of containment leakage paths that are detected only by Type A testing is very small. VY's ILRT test history supports this conclusion. NUREG-1493 concluded, in part, that reducing the frequency of Type A containment leak tests to once per twenty (20) years leads to an imperceptible increase in risk. The integrity of the reactor containment is subject to two types of failure mechanisms which can be categorized as (1) activity based and (2) time based. Activity based failure mechanisms are defined as degradation due to system and/or component modifications or maintenance. Local leak rate test requirements and administrative controls such as design change control and procedural requirements for system restoration ensure that containment integrity is not degraded by plant modifications or maintenance activities. The

design and construction requirements of the reactor containment itself combined with the containment inspections performed in accordance with ASME Section XI, the Maintenance Rule and Licensing commitments related to containment coatings serve to provide a high degree of assurance that the containment will not degrade in a manner that is detectable only by Type A testing. Therefore, the proposed Technical Specification change does not involve a significant increase in the consequences of an accident previously evaluated.

2. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed revision to the Technical Specifications involves a one-time extension to the current interval for Type A containment testing. The reactor containment and the testing requirements invoked to periodically demonstrate the integrity of the reactor containment exist to ensure the plant's ability to mitigate the consequences of an accident and do not involve the prevention or identification of any precursors of an accident. The proposed Technical Specification change does not involve a physical change to the plant or the manner in which the plant is operated or controlled. Therefore, the proposed Technical Specification change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The operation of Vermont Yankee Nuclear Power Station in accordance with the proposed amendment will not involve a significant reduction in a margin of safety.

The proposed revision to Technical Specifications involves a one-time extension to the current interval for Type A containment testing. The proposed Technical Specification change does not involve a physical change to the plant or a change in the manner in which the plant is operated or controlled. The specific requirements and conditions of the Primary Containment Leak Rate Testing Program, as defined in Technical Specifications, exist to ensure that the degree of reactor containment structural integrity and leak-tightness that is considered in the plant safety analysis is maintained. The overall containment leak rate limit specified by Technical Specifications is maintained. The proposed change involves only the extension of the interval between Type A containment leak rate tests. The proposed surveillance interval extension is bounded by the 15 month extension currently authorized within NEI 94-01. Type B and C containment leak rate tests will continue to be performed at the frequency currently required by plant Technical Specifications. VY's, as well as the industries experience, strongly supports the conclusion that Type B and C testing detects a large percentage of containment leakage paths and that the percentage of containment leakage paths that are detected only by Type A testing is small. The containment inspections performed in accordance with ASME Section XI, the Maintenance Rule and the Coatings Program serve to provide a high degree of assurance that the containment will not degrade in a manner that is detectable only by Type A testing. Additionally, the on-line containment monitoring capability that is inherent to inerted BWR containments allows for the detection of gross containment leakage that may develop during power operation. The combination of these factors ensures that the margin of safety that is inherent in plant safety analysis is maintained. Therefore, the proposed Technical Specification change does not involve a significant reduction in a margin of safety.

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Attachment 3

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 253

Integrated Leak Rate Test Interval Extension

Marked-up Version of the Current Technical Specifications

Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

C. PRIMARY CONTAINMENT LEAK RATE TESTING PROGRAM

A program shall be established to implement the leak rate testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, entitled "Performance Based Containment Leak-Test Program," dated September 1995.

INSERT A

The peak calculated containment internal pressure for the design basis loss of coolant accident, Pa, is 44 psig.

The maximum allowable primary containment leak rate, La, at Pa, shall be 0.8% of primary containment air weight per day.

Leak rate acceptance criteria are:

1. Primary containment leak rate acceptance criterion $\leq 1.0 L_a$.
2. The as-left primary containment integrated leak rate test (Type A test) acceptance criterion is $\leq 0.75 L_a$.
3. The combined local leak rate test (Type B and C tests) acceptance criterion is $\leq 0.60 L_a$, calculated on a maximum pathway basis, prior to entering a mode of operation where containment integrity is required.
4. The combined local leak rate test (Type B and C tests) acceptance criterion is $\leq 0.60 L_a$, calculated on a minimum pathway basis, at all times when primary containment integrity is required.
5. Airlock overall leak rate acceptance criterion is $\leq 0.10 L_a$ when tested at $\geq P_a$.

The provision of the Definition (1.0.Y) for Surveillance Frequency does not apply to the test frequencies specified in the Primary Containment Leak Rate Testing Program.

D. Radioactive Effluent Controls Program

This program conforming to 10 CFR 50.36a provides for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably

INSERT A (TS 6.7.C)

, as modified by the following exception to NEI 94-01, Rev 0, "Industry Guideline for Implementing Performance-Based Option of 10CFR50, Appendix J":

Section 9.2.3: The first Type A test after the April 1995 Type A test shall be performed no later than November 2005.

Attachment 4

Vermont Yankee Nuclear Power Station

Proposed Technical Specification Change No. 253

Integrated Leak Rate Test Interval Extension

Retyped Technical Specification Pages

Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed, and shall indicate the date (e.g., month/year) the change was implemented.

C. PRIMARY CONTAINMENT LEAK RATE TESTING PROGRAM

A program shall be established to implement the leak rate testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, entitled "Performance Based Containment Leak-Test Program," dated September 1995, as modified by the following exception to NEI 94-01, Rev. 0, "Industry Guideline for Implementing Performance-Based Option of 10CFR50, Appendix J":

Section 9.2.3: The first Type A test after the April 1995 Type A test shall be performed no later than November 2005.

The peak calculated containment internal pressure for the design basis loss of coolant accident, Pa, is 44 psig.

The maximum allowable primary containment leak rate, La, at Pa, shall be 0.8% of primary containment air weight per day.

Leak rate acceptance criteria are:

1. Primary containment leak rate acceptance criterion $< 1.0 L_a$.
2. The as-left primary containment integrated leak rate test (Type A test) acceptance criterion is $\leq 0.75 L_a$.
3. The combined local leak rate test (Type B and C tests) acceptance criterion is $\leq 0.60 L_a$, calculated on a maximum pathway basis, prior to entering a mode of operation where containment integrity is required.
4. The combined local leak rate test (Type B and C tests) acceptance criterion is $\leq 0.60 L_a$, calculated on a minimum pathway basis, at all times when primary containment integrity is required.
5. Airlock overall leak rate acceptance criterion is $\leq 0.10 L_a$ when tested at $\geq P_a$.

The provision of the Definition (1.0.Y) for Surveillance Frequency does not apply to the test frequencies specified in the Primary Containment Leak Rate Testing Program.

D. Radioactive Effluent Controls Program

This program conforming to 10 CFR 50.36a provides for the control of radioactive effluents and for maintaining the doses to members of the public from radioactive effluents as low as reasonably

Listing of Affected Technical Specifications Pages

Replace the Vermont Yankee Nuclear Power Station Technical Specifications pages listed below with the revised pages. The revised pages contain vertical lines in the margin indicating the areas of change.

Remove
265

Insert
265