Duke Energy

W. R. McCollum, Jr.
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March 5, 2001

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Subject: Oconee Nuclear Station, Unit 3
Docket Numbers 50-269
Proposed Technical Specification Amendment for One-time Surveillance Interval Extension of Containment Integrated Leak Rate Test
(TSCR 2000-06)

Pursuant to 10 CFR 50.90 and 10 CFR 50.4, Duke Energy Corporation (Duke) hereby submits a License Amendment Request (LAR) for Oconee Nuclear Station, Unit 3. This request proposes a one-time extension to the surveillance interval requirements of Technical Specification (TS) 5.5.2 for the containment Integrated Leak Rate Test (ILRT) required by 10 CFR 50, Appendix J per the guidance of Regulatory Guide 1.163.

This one-time surveillance extension is requested due to events that create the requirement to perform containment ILRTs for Unit 3 during two sequential refueling outages at an approximate 18-month interval. This situation occurs since the 10-year interval ILRT is due one refueling cycle prior to the steam generator replacement outage during which an ILRT will be required to assure containment leakage integrity.

Attachments 1 and 2 provide mark-up and new pages of the Oconee TS and associated Bases, respectively. The Description of Proposed Changes and Technical Justification is provided in Attachment 3. Pursuant to 10 CFR 50.92, Attachment 4 documents the determination the LAR contains No Significant Hazards Considerations. Pursuant to 10 CFR 51.22(c)(9), Attachment 5 provides the basis for categorical exclusion from performing an Environmental Assessment.

Implementation of this amendment to the Oconee Technical Specifications will not impact the Oconee UFSAR.

Approval of this change is requested by December 3, 2001, to support timely refueling outage planning. The default 30-day implementation period is adequate for the requested change.

The Duke Nuclear Safety Review Board and the Oconee Plant Operations Review Committee have reviewed and approved this LAR in accordance with the Duke Quality Assurance Program.

A001

A copy of this application is being forwarded to the South Carolina Department of Health and Environmental Control in accordance with 10 CFR 50.91.

Please contact Robert C. Douglas at 864-885-3073 with any questions regarding this submittal.

Very truly yours,

W. R. McCollum, Jr.
Site Vice President
Oconee Nuclear Station

Attachments

xc: (w/attachments)

L.A. Reyes
Administrator, Region II

M. C. Shannon
NRC Senior Resident Inspector
Oconee Nuclear Station

D. E. LaBarge
ONRR, Senior Project Manager

V.R. Autry, Director
DHEC

AFFIDAVIT

W. R. McCollum, Jr., states that he is Site Vice President of Duke Energy Corporation; that he is authorized on the part of said corporation to sign and file with the Nuclear Regulatory Commission this amendment to the Oconee Nuclear Station Facility Operating License No. DPR-38 and Technical Specifications; and that all statements and matters set forth therein are true and correct to the best of his knowledge.

W. R. McCollum, Jr., Site Vice President

Subscribed and sworn to me: March 5, 2001
Date

Connie M. Dreagale, Notary Public

My Commission Expires: 2-12-2003
Date

SEAL

U. S. Nuclear Regulatory Commission
March 5, 2001

Attachment 1

OCONEE NUCLEAR STATION

Mark-up Technical Specification Pages

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

The following programs shall be established, implemented, and maintained.

5.5.1 Offsite Dose Calculation Manual (ODCM)

The ODCM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program.

Licensee initiated changes to the ODCM:

a. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

   1. sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and

   2. a determination that the change(s) do not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations;

b. Shall become effective after the approval of the Station Manager; and

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Release Report for the period of the report in which any change in 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 (i.e., month and year) the change was implemented.

5.5.2 Containment Leakage Rate Testing Program

This program provides controls for implementation of the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions for Type A testing.

The first Unit 3 SR 3.6.1.1 Type A test that is performed after the September 11, 1992, test, shall be performed no later than April 11, 2005.

U. S. Nuclear Regulatory Commission
March 5, 2001

Attachment 2

OCONEE NUCLEAR STATION

Replacement Technical Specification Pages

Remove	Insert
5.0-7	5.0-7

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Description of Proposed Change and Technical Justification

1.0 INTRODUCTION

1.1. This License Amendment Request (LAR) is for a one-time surveillance frequency extension to the requirements of Technical Specification (TS) 5.5.2, Containment Leakage Rate Testing Program, for Oconee Nuclear Station (ONS), Unit 3. The one-time extension request applies to the containment Type A Integrated Leak Rate Test (ILRT) required by 10 CFR 50, Appendix J.

1.2. No changes to the ONS Updated Final Safety Analysis Report are anticipated as a result of this LAR.

2.0 DESCRIPTION

The proposed change revises TS 5.5.2 by adding a provision for an extension of the surveillance frequency for performance of the next Unit 3 Type A test. The following paragraph is be added to TS 5.5.2:

> The first Unit 3 SR 3.6.1.1 Type A test that is performed after the September 11, 1992, test, shall be performed no later than April 11, 2005.

In summary, the requested license amendment is a one-time request to extend the interval for performance of the next Oconee Unit 3 Type A leak rate test required by 10 CFR 50, Appendix J from December 11, 2003, until April 11, 2005.

3.0 BACKGROUND

3.1. Description of Containment

The containment structure consists of a post-tensioned reinforced concrete cylinder and dome connected to and supported by a massive reinforced concrete foundation slab. The entire interior surface of the structure is lined with a ¼ inch thick welded ASTM A36 steel plate to assure a high degree of leak tightness. Numerous mechanical and electrical systems penetrate the Reactor Building wall through welded steel penetrations. Penetrations conform to the applicable sections of ASA N6.2-1965, "Safety Standard for the Design, Fabrication and Maintenance of Steel Containment Structures for Stationary Nuclear Power Reactors." All personnel locks and any portion of the equipment access door extending beyond the concrete shell conform in all respects to the requirements of ASME Section III.

3.2. Regulatory Requirements

In September 1995, the Nuclear Regulatory Commission issued NUREG-1493 (Reference 1). This document contained findings that supported extending containment

leak-testing intervals. With Regulatory Guide (RG) 1.163 (Reference 2), the NRC amended its regulations to provide a performance-based option, Option B, for leakage-rate testing of containments of light-water cooled nuclear power plants. Regulatory Guide 1.163 endorses NEI 94-01 (Reference 3), with exceptions, and ANSI/ANS-56.8-1994 (Reference 4). Licensees may voluntarily comply with this Option B as an alternative to the current requirements in Appendix J. ONS has met the requirements for conversion to Option B and has converted to Option B for its Type A test (Reference 5). The three ONS units currently satisfy the requirements of Regulatory Guide 1.163 for a 10-year Type A test interval.

RG 1.163, section C, "Regulatory Position," item 1 states "... However, as stated in NEI 94-01, the test intervals in ANSI/ANS 56.8-1994 are not performance based. Therefore, licensees intending to comply with Option B in the amendment to Appendix J should establish test intervals based upon the criteria in Section 11.0 of NEI 94-01...." NEI 94-01 allows for a 25 percent extension to the test interval (not to exceed 15 months).

3.3. Description of Circumstances

The Type A test for Oconee Unit 3 was last performed on September 11, 1992: The 10-year interval for the test ends on September 11, 2002. Using the 15-month extension permitted by NEI 94-01 and RG 1.163, the Type A test may be deferred to December 11, 2003.

The Unit 3 Steam Generators (SG) are scheduled to be replaced during the End-of-Cycle (EOC) 21 outage currently scheduled to begin in October 2004. Following SG replacement, a Type A test is required to ensure restoration of containment integrity following closure of a temporary containment opening. The October 2004 SG outage replacement date is approximately 10 months beyond the end of the 15 month grace period. Therefore, Oconee would be required to perform two consecutive Type A tests, one on the 10-year (plus about 7 months of the allowed 15-month extension) schedule at EOC-20, and another test following the Steam Generator replacement (EOC-21) to verify containment structural integrity following closure of the temporary containment opening.

Approval of this request avoids performing the two consecutive Type A tests at an approximate 18-month interval. Testing at this interval is unnecessary to demonstrate required containment leakage integrity and incurs substantial unnecessary cost.

This LAR requests a 16-month extension of the test interval for performance of the next Unit 3 Type A test. The requested 16-month extension consists of 10 months between the next required test date and the beginning of the currently scheduled SG replacement outage described above, plus an additional six months contingency for unplanned prolonged outages which may delay the SG replacement outage. Performance of the EOC-21 deferred ILRT pursuant to this request would set a new beginning point of the test interval for subsequent ILRTs.

Note that the Type A tests for Units 1 and 2 can be delayed until their SG replacement outages using the grace period allowed by RG 1.163 and NEI 94-01. Unit 1 will use

approximately eight months of the grace period and Unit 2 will use approximately nine months.

NUREG-1493, Section 8.2.2, estimates the total cost for a Type A test to be $1.89 million. This is based on 3500 labor hours for systems alignment, draining, filling, and surveillance. The estimated labor cost of $35 per labor-hour resulted in a total labor cost of $122,500. The equipment rental and services are estimated at $100,000. The prerequisite Type B and C testing adds an additional labor cost of $165,000. The average Type A test can take from 3 to 5 days. The average replacement energy cost is $300,000 per day (NRC91A). For 5 day duration (time frame provided by the utilities), the total replacement energy cost is estimated to be $1.5 million per test. Thus, the total cost of a Type A test is estimated to be $1.89 million.

Based on the above and applying today's labor rate and energy replacement cost, an additional Type A test would cost ONS approximately $2.0 million.

Due to the long lead-time in planning and establishing the logistics for a Type A test, action on this LAR is requested by December 3, 2001 to provide planning certainty. A 30-day implementation period is acceptable for this LAR

4.0 TECHNICAL ANALYSIS

4.1. Containment Leakage Performance

A review of all prior Type A Integrated Leak Rate Tests has been performed. The test results are summarized in the following table:

Unit 3 ILRT Results (wt %/day)		
Date	**Half Pressure ILRT (29.5 psig) Acceptance: 0.132[1] wt %/day**	**Full Pressure ILRT (59 psig) Acceptance: 0.1875 wt %/day**
May-74	0.0242	0.0209
Jul-78	0.1029	-
Feb-81	0.0656	-
May-84	0.1080	-
Mar-87	0.1148	-
Dec-89	0.1188	-
Sep-92	-	0.1196

Comments:
1. Prior to September 1992, ILRTs were performed at a test pressure of half of containment design pressure that equated to 29.5 psig.

Since initial construction of the Unit 3 containment vessel, repairs have not been necessary to maintain the required pressure retaining integrity, other than replacement of degradable items such as containment hatch seals subject to physical wear.

The foregoing test results indicate a containment leakage increase beyond the acceptance criteria during the extension interval is highly unlikely.

4.2. Containment Condition

The ONS Unit 3 containment ASME XI, Class MC and CC Inservice Inspections (ISI) required by 10 CFR 50.55a(g)(6)(ii)(B) were performed in early 2000 as documented in Reference 6. As documented by Reference 7 concerning the preceding ISI, degradation of sealant materials at embedment zones between the containment concrete floor and metal liner has been observed which led to water intrusion from in-containment sources. Visual inspections performed at selected locations of the metal liner revealed some localized loss of coating and minor surface corrosion. However, ultrasonic thickness measurements performed indicated no measurable loss of liner material in the most severely affected areas. The metal liner surfaces damaged by water intrusion were cleaned, inspected, and recoated as necessary to prevent further damage. These inspections did not reveal any conditions that could be reasonably expected to result in degradation of containment pressure integrity during the requested surveillance extension.

Absent accident conditions, structural deterioration is a gradual phenomenon requiring periods of time well in excess of the proposed one-time extension. Other than accident conditions, the only pressure challenge to containment is the ILRT itself.

It is therefore concluded the Unit 3 containment condition will continue to provide reasonable assurance allowable leakage limits will not be exceeded for the duration of the requested extension.

4.3. Risk Impact to the Public

The testing requirements of 10 CFR 50, Appendix J, provide assurance that leakage through the containment, including systems and components that penetrate the containment, does not exceed the allowable leakage values specified in the Technical Specifications. The containment leakage limitation provides assurance the containment will perform its design function following an accident up to and including the plant design basis accident.

Adoption of the Option B performance-based containment leakage rate testing program did not alter the basic method by which Appendix J leakage rate testing is performed. Option B did alter the frequency of measuring primary containment leakage in Type A tests. Frequency is based upon an evaluation which looks at the "as found" leakage history to determine the frequency for leakage testing which provides assurance leakage limits will be maintained. The Option B changes to the Type A test frequency did not result in an increase in containment leakage as shown in Section 4.3 above. Similarly, the proposed one-time extension of the Unit 3 Type A test will not result in an increase in containment leakage.

The frequency for testing allowed by 10 CFR 50, Appendix J, Option B was based upon a generic evaluation documented in NUREG-1493 (Reference 4). 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 same fraction of leakage detected solely by Type A testing, increasing the interval between ILRT testing had minimal impact on public risk."

- While Type B and C tests identify the vast majority (approximately 97%) 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 risk analysis in NUREG-1493 indicated that reactor accident risks are dominated by accident sequences that result in failure or bypass of the containment. This conclusion is also valid for ONS. Considering only the ONS accident sequences that do not result in containment failure, containment leakage contributes approximately 0.1 to 0.2 percent to off-site risk (whole-body person rem, thyroid nodules, and latent fatalities) (Reference 7, Tables 6.3-1 to 6.3-3).

The risk analysis in NUREG-1493 considered the effect of increased containment leakage on reactor accident risk. The analysis concluded containment leakage has very little impact on accident risk. Containment leak rates that were much greater than the allowed leak rate did not significantly increase off-site risk. Similar increases in leak rates at ONS are expected to produce increases in accident risk comparable to those found in NUREG-1493. The conclusions from NUREG-1493 concerning the impact of containment leakage on accident risk may be applied to ONS and it is concluded delaying the ILRT will have minimal impact on public risk.

The surveillance frequency for Type A testing in NEI 94-01 is at least once per 10 years. The 10-year interval is 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 1.0 L_a and consideration of the performance factors of NEI 94-01, Section 11.3). Based on the demonstrated acceptable performance history described in Section 4.1 above, the current interval for Oconee Unit 3 is once every 10 years. This performance history provides additional assurance the containment leakage performance will continue to meet the acceptance criteria for the duration of the requested surveillance interval extension.

4.4. Safety Evaluation

Compliance with the requirements of 10 CFR 50, Appendix J is still assured. Type B and C local tests will continue to be performed in accordance with RG 1.163, ANS/ANSI 56.9 and NEI 94-01. These tests detect approximately 97% of all containment leakage.

General Visual examinations of the containment accessible metal shell and penetration liners together, and containment accessible concrete surfaces, will continue to be performed in accordance with applicable codes and regulations.

The above tests and examinations, along with the excellent leakage performance history provide reasonable assurance the containment remains within acceptable limits during the requested extension period. It is therefore concluded the risk to the public will not be adversely affect by the requested extension in the Type A test frequency for Unit 3.

5.0 References:

1. NUREG-1493, "Performance-Based Containment Leak-Test Program,' Final Report, September 1995.

2. Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," September 1995.

3. NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J, dated July 26, 1995.

4. American National Standard ANSI/ANS - 56.8 - 1994, "Containment System Leakage Testing Requirements."

5. Letter, DE LaBarge (NRC) to JW Hampton (Duke), Issuance of Technical Specification Amendments ... " (Amendments 218, 218, and 215), dated October 30, 1996.

6. Letter, WR McCollum (Duke) to NRC Document Control Desk, "Inservice Inspection Summary Report for Class MC and CC Component Examinations Completed by End of Refueling Outage EOC-18" for Oconee Unit 3, dated August 18, 2000.

7. Duke Power Company, Oconee Nuclear Station, PRA Revision 2, dated December 2, 1996.

NO SIGNIFICANT HAZARDS CONSIDERATION

Duke Energy Corporation (Duke) has evaluated whether or not a significant hazards consideration is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92 as discussed below:

1. **Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?**

   Response: No

   10 CFR 50, Appendix J has been amended to include provisions regarding performance based leakage rate testing requirements (Option B). Option B allows plants with satisfactory ILRT performance history to extend the Type A testing interval from three tests in ten years to one test in ten years. To accommodate the Steam Generator Replacement/Modification, Duke proposes a one-time extension to the Type A test frequency for Oconee Nuclear Station (ONS), Unit 3, by approximately 16 months.

   The proposed change to Technical Specification 5.5.2, "Containment Leakage Rate Testing Program," to extend the Type A test frequency, represents a minor relaxation in current NEI 94-01 requirements (as endorsed by Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995). The change is based on risk studies documented in NUREG-1493. This change is consistent with the current safety analyses and provides reasonable assurance the Unit 3 containment and associated Structures, Systems and Components (SSC) remain within the limits of the safety analyses and provides continued assurance that specified parameters associated with containment integrity remain within acceptance limits. This change will not significantly increase the probability or consequences of any previously evaluated accident.

   The SSCs affecting containment integrity related to this proposed amendment request are not assumed in any safety analyses to initiate any accident sequence. The probability of any accident previously evaluated is not increased by this proposed amendment. The proposed one-time relief does not significantly impact risk, or level of reliability and availability for any SSC. The proposed amendment does not increase the consequences of any accident previously evaluated.

   There is no change to the consequences of an accident previously evaluated because maintaining leakage within the analyzed limit assumed for any associated accident analyses does not adversely affect either the on-site or off-site dose consequences resulting from an accident. There is no adverse impact on the probability of accident initiators. There is no significant increase in the probability of any previously analyzed accident. A plant specific risk-based analysis for ONS indicates the containment penetration leakage dose rate contribution to the total dose rate in person-rem is not significant.

2) Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No

The proposed change is consistent with the current safety analyses. The proposed one-time relaxation in current NEI 94-01 requirements associated with containment integrity is based on risk studies provided in NUREG-1493. This change does not involve revisions to the design of the station. The proposed change will not introduce new failure mechanisms beyond those already considered in the current safety analyses.

The proposed amendment has been reviewed for acceptability considering the design of SSCs affecting containment integrity. No new modes of operation are introduced by the proposed changes. The proposed one-time extension does not adversely affect the present level of operability of any SSC that affects containment integrity. The proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

The SSCs that affect leak rate integrity related to the proposed amendment are not assumed in any safety analysis to initiate any accident sequence. The one-time proposed extension does not significantly impact risk, or level of reliability and availability for all affected SSCs and therefore does not increase the consequences of any previously evaluated accident.

3) Do the proposed changes involve a significant reduction in the margin of safety?

Response: No

The provisions specified in Option B of 10 CFR 50 Appendix J allow for the Type A test interval to be extended to 10 years plus an additional 25% (not to exceed 15 months) as allowed by NEI 94-01. The effect of extending the Type A leakage rate testing interval is a corresponding increase in the likelihood of containment leakage. The degree to which the interval can be extended is a direct function of the potential effect to the existing safety margins and the public health and safety that can occur due to an increased likelihood of containment leakage. 10 CFR 50 Appendix J, Option B allows longer intervals between leakage tests based on performance trends but does not increase the leakage acceptance criteria.

Increasing the Type A test interval beyond the 10-year plus15 month limitation specified in NEI 94-01, does not significantly increase the risk impact to the public. NUREG-1493 risk studies suggest that increasing the Type A test interval from one in 10-years to one in 20-years has no adverse effect on the risk to the public. When considering risk to the public and occupational exposure and the total integrated risk, which includes all analyzed accident sequences, the risk associated with increasing the Type A test interval is negligible

The proposed change is consistent with the current ONS safety analyses. This proposed change does not involve revisions to the design of the station. The proposed

change does not impact the level of reliability of equipment associated with containment integrity assumed to operate in the safety analysis. The proposed change provides continued assurance of containment leakage integrity without adversely affecting the public health and safety and will not significantly reduce existing safety margins

The performance-based approach to leakage rate testing concludes the impact on public health and safety due to increasing the Type A test interval is negligible. The proposed amendment will not reduce availability of SSCs associated with containment integrity when required to mitigate accident conditions; therefore, the proposed change does not involve a significant reduction in the margin of safety.

Based on the above evaluations, Duke concludes the activities associated with the above described changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92 and accordingly, a finding by the NRC of no significant hazards consideration is justified.

ENVIRONMENTAL ASSESSMENT

ONS has evaluated the proposed amendment against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. The proposed change meets the criteria for a categorical exclusion as provided under 10 CFR 51.22 (c)(9). This conclusion has been determined because the change requested does not pose significant hazards considerations or does not involve a significant increase in the amounts, and no significant changes in the types of any effluent that may be released off-site. This request does not involve an increase in individual or cumulative occupational radiation exposure.