UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 5, 2013

Mr. Scott Batson
Site Vice President
Oconee Nuclear Station
Duke Energy Carolinas, LLC
7800 Rochester Highway
Seneca, SC 29672-0752

SUBJECT: OCONEE NUCLEAR STATION, UNITS 2 AND 3, ISSUANCE OF AMENDMENTS REGARDING EXTENSION OF THE REACTOR BUILDING INTEGRATED LEAK RATE TEST (TAC NOS. ME9777 AND ME9778)

Dear Mr. Batson:

The Nuclear Regulatory Commission has issued the enclosed Amendment Nos. 383 and 382 to Renewed Facility Operating Licenses DPR-47 and DPR-55, for the Oconee Nuclear Station, Units 2 and 3, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated October 5, 2012.

This amendment revises the due date for the next integrated leak rate test of the Unit 2 reactor building from May 29, 2014, to December 29, 2015, and revises the due date for the next integrated leak rate test of the Unit 3 reactor building from December 21, 2014, to July 21, 2016, which better aligns with the two-year refueling outage schedules at Units 2 and 3.

A copy of the related Safety Evaluation is also enclosed. A Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

If you have any questions, please call me at 301-415-2901.

Sincerely,

John P. Boska

John P. Boska, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-270 and 50-287

Enclosures:
1. Amendment No. 383 to DPR-47
2. Amendment No. 382 to DPR-55
3. Safety Evaluation

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUKE ENERGY CAROLINAS, LLC

DOCKET NO. 50-270

OCONEE NUCLEAR STATION, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 383
Renewed License No. DPR-47

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 2 (the facility), Renewed Facility Operating License No. DPR-47, filed by Duke Energy Carolinas, LLC (the licensee), dated October 5, 2012, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;

   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 hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Renewed Facility Operating License No. DPR-47 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 383, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert J. Pascarelli, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. DPR-47
and the Technical Specifications

Date of Issuance: August 5, 2013

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DUKE ENERGY CAROLINAS, LLC

DOCKET NO. 50-287

OCONEE NUCLEAR STATION, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 382
Renewed License No. DPR-55

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment to the Oconee Nuclear Station, Unit 3 (the facility), Renewed Facility Operating License No. DPR-55, filed by Duke Energy Carolinas, LLC (the licensee), dated October 5, 2012, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as 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 set forth in 10 CFR Chapter I;

   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 hereby amended by page changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 3.B of Renewed Facility Operating License No. DPR-55 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 382, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert J. Pascarelli, Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility
Operating License No. DPR-55
and the Technical Specifications

Date of Issuance: August 5, 2013

ATTACHMENT TO LICENSE AMENDMENT NO. 383

RENEWED FACILITY OPERATING LICENSE NO. DPR-47

DOCKET NO. 50-270

AND

TO LICENSE AMENDMENT NO. 382

RENEWED FACILITY OPERATING LICENSE NO. DPR-55

DOCKET NO. 50-287

Replace the following pages of the Licenses and the Appendix A Technical Specifications (TSs) with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages	Insert Pages
Licenses	Licenses
License No. DPR-47, page 3	License No. DPR-47, page 3
License No. DPR-55, page 3	License No. DPR-55, page 3
TSs	TSs
Page 5.0-7	Page 5.0-7
Page 5.0-8	Page 5.0-8

A. Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2568 megawatts thermal.

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 383 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

C. This license is subject to the following antitrust conditions:

Applicant makes the commitments contained herein, recognizing that bulk power supply arrangements between neighboring entities normally tend to serve the public interest. In addition, where there are net benefits to all participants, such arrangements also serve the best interests of each of the participants. Among the benefits of such transactions are increased electric system reliability, a reduction in the cost of electric power, and minimization of the environmental effects of the production and sale of electricity.

Any particular bulk power supply transaction may afford greater benefits to one participant than to another. The benefits realized by a small system may be proportionately greater than those realized by a larger system. The relative benefits to be derived by the parties from a proposed transaction, however, should not be controlling upon a decision with respect to the desirability of participating in the transaction. Accordingly, applicant will enter into proposed bulk power transactions of the types hereinafter described which, on balance, provide net benefits to applicant. There are net benefits in a transaction if applicant recovers the cost of the transaction (as defined in ¶1 (d) hereof) and there is no demonstrable net detriment to applicant arising from that transaction.

1. As used herein:

(a) "Bulk Power" means electric power and any attendant energy, supplied or made available at transmission or sub-transmission voltage by one electric system to another.

(b) "Neighboring Entity" means a private or public corporation, a governmental agency or authority, a municipality, a cooperative, or a lawful association of any of the foregoing owning or operating, or proposing to own or operate, facilities for the generation and transmission of electricity which meets each of

A. Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2568 megawatts thermal.

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 382 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

C. This license is subject to the following antitrust conditions:

Applicant makes the commitments contained herein, recognizing that bulk power supply arrangements between neighboring entities normally tend to serve the public interest. In addition, where there are net benefits to all participants, such arrangements also serve the best interests of each of the participants. Among the benefits of such transactions are increased electric system reliability, a reduction in the cost of electric power, and minimization of the environmental effects of the production and sale of electricity.

Any particular bulk power supply transaction may afford greater benefits to one participant than to another. The benefits realized by a small system may be proportionately greater than those realized by a larger system. The relative benefits to be derived by the parties from a proposed transaction, however, should not be controlling upon a decision with respect to the desirability of participating in the transaction. Accordingly, applicant will enter into proposed bulk power transactions of the types hereinafter described which, on balance, provide net benefits to applicant. There are net benefits in a transaction if applicant recovers the cost of the transaction (as defined in ¶1 (d) hereof) and there is no demonstrable net detriment to applicant arising from that transaction.

1. As used herein:

   (a) "Bulk Power" means electric power and any attendant energy, supplied or made available at transmission or sub-transmission voltage by one electric system to another.

   (b) "Neighboring Entity" means a private or public corporation, a governmental agency or authority, a municipality, a cooperative, or a lawful association of any of the foregoing owning or operating, or proposing to own or operate, facilities for the generation and transmission of electricity which meets each of

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

A program shall establish 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. The next Unit 1 ILRT following the December 8, 2003 test shall be performed no later than March 8, 2015. The next Unit 2 ILRT following the May 29, 2004 test shall be performed no later than December 29, 2015. The

5.5 Programs and Manuals

5.5.2 Containment Leakage Rate Testing Program (continued)

next Unit 3 ILRT following the December 21, 2004 test shall be performed no later than July 21, 2016. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995. Containment system visual examinations required by Regulatory Guide 1.163, Regulatory Position C.3 shall be performed as follows:

1. Accessible concrete surfaces and post-tensioning system component surfaces of the concrete containment shall be visually examined prior to initiating SR 3.6.1.1 Type A test. These visual examinations, or any portion thereof, shall be performed no earlier than 90 days prior to the start of refueling outages in which Type A tests will be performed. The validity of these visual examinations will be evaluated should any event or condition capable of affecting the integrity of the containment system occur between the completion of the visual examinations and the Type A test.

2. Accessible interior and exterior surfaces of metallic pressure retaining components of the containment system shall be visually examined at least three times every ten years, including during each shutdown for SR 3.6.1.1 Type A test, prior to initiating the Type A test.

The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a is 59 psig. The containment design pressure is 59 psig.

The maximum allowable containment leakage rate, L_a at P_a, shall be 0.20% of the containment air weight per day. Leakage rate acceptance criterion is:

a. Containment leakage rate acceptance criterion is $\leq$ 1.0 L_a. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq$ 0.60 L_a for the Type B and C tests, and $\leq$ 0.75 L_a for Type A tests;

The provisions of SR 3.0.3 are applicable to the Containment Leakage Rate Testing Program.

Nothing in these Technical Specifications shall be construed to modify the testing Frequencies of 10 CFR 50, Appendix J.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 383 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-47

AND

AMENDMENT NO. 382 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-55

DUKE ENERGY CAROLINAS, LLC

OCONEE NUCLEAR STATION, UNITS 2 AND 3

DOCKET NOS 50-270 AND 50-287

1.0 INTRODUCTION

By application dated October 5, 2012, Agencywide Documents Access and Management System (ADAMS) Accession No. ML12285A381, Duke Energy Carolinas, LLC (Duke, or the licensee), requested changes to the Technical Specifications (TSs) for the Oconee Nuclear Station, Units 2 and 3 (ONS2 and ONS3).

The proposed change would allow for a one-time extension to the once per ten years frequency of the reactor containment building leakage rate test (i.e., the Type A test, also known as the integrated leak rate test (ILRT), per Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix J, "Primary Reactor Containment Leakage Testing For Water-Cooled Power Reactors"). This test is required by Technical Specification (TS) 5.5.2 "Containment Leakage Rate Testing Program." The proposed change would permit the existing integrated leak rate test (ILRT) frequency to be extended from 10 years to approximately 11.6 years. The proposed change would avoid the necessity of performing a Type A test six months prior to the 10th year anniversary of the completion of the last Type A test for ONS2, which was completed on May 29, 2004. The proposed change would also avoid the necessity of performing a Type A test eight months prior to the 10th year anniversary of the completion of the last Type A test for ONS3, which was completed on December 21, 2004. This license amendment will extend the period from 120 months (10 years) to no longer than 139 months between successive tests. In terms of refueling outages, this extension would move the performance of the next ILRT for ONS2 from the fall 2013 refueling outage (2EOC26) to the fall 2015 refueling outage (2EOC27). It would also move the performance of the next ILRT for ONS3 from the spring 2014 refueling outage (3EOC27) to the spring 2016 refueling outage (3EOC28).

2.0 REGULATORY EVALUATION

The primary reactor containment, which at ONS2 and ONS3 is called the reactor building, is the structure that encloses the components of the reactor coolant pressure boundary and serves as an essentially leak-tight barrier against the uncontrolled release of radioactivity to the environment. As described in the Updated Final Safety Analysis Report (UFSAR) sections 1.2.2.3, 3.8 and 6.2, the containment is designed to permit leakage monitoring during the life of the plant. A program of testing and surveillance of the reactor building has been developed to provide assurance, during service, of the capability of each containment system to perform its intended safety function. This program consists of the following tests: (1) overall integrated leak rate tests of the reactor building; (2) local leak detection tests of components having resilient seals, gaskets, or sealant compounds that penetrate or seal the boundary of the containment system; (3) local leak detection and operability tests of containment isolation valves in systems that vent directly to the reactor building atmosphere or the reactor coolant system that must close upon receiving an isolation signal and seal the containment under accident conditions; and (4) operability tests of engineered safeguards systems which under post-accident conditions are relied upon to limit or reduce leakage from the containment.

Pursuant to 10 CFR 50.54(o), the primary reactor containment is subject to the requirements of Appendix J to Part 50, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors." These test requirements provide for preoperational and periodic verification by tests of the leak-tight integrity of the primary reactor containment, and systems and components which penetrate containment of water-cooled power reactors, and establish the acceptance criteria for these tests. The purposes of the tests are to assure that (a) leakage through the primary reactor containment and systems and components penetrating primary containment shall not exceed allowable leakage rate values as specified in the technical specifications or associated bases; and (b) periodic surveillance of reactor containment penetrations and isolation valves is performed so that proper maintenance and repairs are made during the service life of the containment, and systems and components penetrating primary containment. Appendix J describes three types of tests. Type A tests are tests intended to measure the primary reactor containment overall integrated leakage rate. Type B tests are tests intended to detect local leaks and to measure leakage across pressure-containing or leakage-limiting boundaries such as containment penetrations whose design incorporates resilient seals, gaskets, or sealant compounds, including doors with resilient seals or gaskets. Type C tests are tests intended to measure leakage rates for containment isolation valves.

Appendix J contains two options, A and B, either of which can be chosen for meeting the requirements of Appendix J. Option A contains prescriptive requirements that must be met at fixed intervals. Option B contains performance-based requirements, is less prescriptive, utilizes risk-based insights, and allows the licensee the flexibility to adopt cost-effective methods, including setting test intervals, for implementing the safety objectives underlying the requirements of Appendix J.

On October 30, 1996, the NRC issued a license amendment that approved the use of Option B for Type A tests for ONS2 and ONS3. NRC Regulatory Guide (RG) 1.163 "Performance-Based Containment Leak-Rate Testing Program," dated September 1995 (ADAMS Accession No. ML003740058) was developed as a method acceptable to the NRC staff for implementing Option B. RG 1.163 states that the Nuclear Energy Institute (NEI) guidance document 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 Option B with four exceptions, which are described in RG 1.163. Extensions in test intervals are allowed using the methods in Section 9, "Determining Performance-Based Test Interval For Type A Tests," of NEI 94-01, based upon two consecutive, periodic Type A tests and consideration of performance factors as described in Section 11.3, "Plant-Specific Testing Program Factors." Section 9.2.3 of NEI-94-01 still requires that Type A testing be performed at a frequency of at least once per 10 years based on acceptable performance history. However, NEI 94-01, Section 9.1, says that "Consistent with standard scheduling practices for Technical Specifications Required Surveillances, intervals for recommended Type A testing given in this section may be extended by up to 15 months. This option should be used only in cases where refueling schedules have been changed to accommodate other factors."

Part 50 of 10 CFR, Appendix J, Option B, "Performance Based Requirements," states that a Type A test shall be conducted at a periodic interval based on historical performance of the overall containment system. ONS2 and ONS3 TS 5.5.2 requires that leakage rate testing be performed as required by 10 CFR Part 50, Appendix J, Option B, as modified by approved exemptions, and in accordance with the guidelines contained in RG 1.163.

A Type A test is an overall ILRT of the containment structure. NEI 94-01, Revision 0, specifies an initial test interval of 48 months, but allows an extended interval of 10 years, based upon two consecutive successful tests. As described earlier, there is also a provision for extending the test interval an additional 15 months, but this "should be used only in cases where refueling schedules have been changed to accommodate other factors." The most recent two Type A tests at ONS2 and ONS3 have been successful, so the current interval requirement is 10 years.

The last ONS2 ILRT was completed on May 29, 2004. The next ILRT, per TS 5.5.2, is required to be performed no later than May 29, 2014. The next ONS2 refueling outage (2EOC26) is scheduled for fall of 2013. Therefore, the next Type A test would have to be performed about six months less than 10 years after the most recent one, because the following refueling outage (2EOC27) would be approximately 138 months after the most recent Type A test, and the additional 15-month extension allowed by NEI 94-01 does not apply. Thus, the licensee is requesting a TS change to add 19 months to the test interval.

The last ONS3 ILRT was completed on December 21, 2004. The next ILRT, per TS 5.5.2, is required to be performed no later than December 21, 2014. The next ONS3 refueling outage (3EOC27) is scheduled for spring of 2014. Therefore, the next Type A test would have to be performed about eight months less than 10 years after the most recent one, because the following refueling outage (3EOC28) would be approximately 136 months after the most recent Type A test, and the additional 15-month extension allowed by NEI 94-01 does not apply. Thus, the licensee is requesting a TS change to add 19 months to the test interval.

The proposed TS change does not involve any other changes to licensing commitments or acceptance criteria.

As additional background, the Nuclear Regulatory Commission (NRC) staff has issued licensing amendments to a significant number of reactor units that extended, on a one-time basis, their Type A test intervals to 15 years, based primarily on probabilistic risk assessment arguments.

Also, the NRC staff refers to NRC Regulatory Issue Summary (RIS) 2008-27, "Staff Position on Extension of the Containment Type A Test Interval Beyond 15 Years Under Option B of Appendix J to 10 CFR Part 50," dated December 8, 2008, for guidance on justifications that would not be acceptable for extending ILRT intervals. The licensee's proposed request for ONS2 and ONS3 is on a one-time basis, but only increases the Type A test interval to 139 months (11.6 years). The licensee cited Oconee Nuclear Station, Unit 1, Nine Mile Point Nuclear Station, Unit 1, Vermont Yankee Nuclear Power Station, Arkansas Nuclear One, Unit No. 2, Seabrook Station, St. Lucie, Unit 2, and Palisades Nuclear Plant, as precedents in obtaining NRC approval of license amendment requests similar to the one proposed for ONS2 and ONS3.

3.0 TECHNICAL EVALUATION

3.1 Method of Review

The NRC staff compared the licensee's proposal against regulatory criteria.

3.2 Technical Specifications Change

The current TS 5.5.2 "Containment Leakage Rate Testing Program," reads as follows:

> A program shall establish 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. The next Unit 1 ILRT following the December 8, 2003 test shall be performed no later than March 8, 2015. This program shall be in accordance with the guidelines of Regulatory Guide 1.163, "Performance-Based Containment Leakage-Rate Program," dated September 1995. Containment system visual examinations required by Regulatory Guide 1.163, Regulatory Position C.3 shall be performed as follows:...

The licensee's proposed request would modify TS 5.5.2 as follows:

> A program shall establish 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. The next Unit 1 ILRT following the December 8, 2003 test shall be performed no later than March 8, 2015. **The next Unit 2 ILRT following the May 29, 2004 test shall be performed no later than December 29, 2015. The next Unit 3 ILRT following the December 21, 2004 test shall be performed no later than July 21, 2016.** This program shall be in accordance with the guidelines of Regulatory Guide 1.163, "Performance-Based Containment Leakage-Rate Program," dated September 1995. Containment system visual examinations required by Regulatory Guide 1.163, Regulatory Position C.3, shall be performed as follows:...

The NRC staff has issued an exemption to ONS2 and ONS3 for 10 CFR Part 50, Appendix J, that is still valid. That exemption allows the licensee to pressurize the door seals on the reactor building personnel air lock for the Type B leakage test, rather than pressurizing the entire air lock. See ADAMS Accession No. ML003670061.

3.3 Containment Leak-Tight Integrity Considerations

The reactor containment leakage test program requires the licensee to perform ILRT, also called a Type A test, and LLRTs known as Type B and Type C tests. The Type A test measures the overall leakage rate of the primary reactor containment. Type B tests are primarily intended to detect leakage paths and measure leakage rates for primary reactor containment penetrations. Type C tests are intended to measure containment isolation valve leakage.

The ONS2 and ONS3 TS 5.5.2 currently requires that the licensee follow Option B of Appendix J, in accordance with the guidelines in RG 1.163. The licensee stated that this will require the next Type A test to be within 10 years after the last Type A test. The licensee has requested a one-time extension of the Type A test interval, not to exceed an additional 19 months, for a total allowable interval of 139 months.

As discussed previously, NEI 94-01, Revision 0, allows an additional 15 months to be added on to the 10-year interval at the discretion of the licensee, but with the restriction that it "should be used only in cases where refueling schedules have been changed to accommodate other factors." The purpose of this restriction is to prevent a licensee from arbitrarily adding the 15 months on to every testing interval, which would effectively change the interval permanently to 135 months. This extension does not apply to ONS2 and ONS3 in this case, since the licensee would have the ability to perform the Type A test during the next refueling outage. However, the use of a 15-month extension was endorsed by the NRC staff through the issuance of RG 1.163 and its endorsement of the guidance in NEI 94-01, Revision 0. The NRC staff notes that the 19-month extension requested by the licensee is not significantly different from the 15-month extension already allowed for those plants where refueling schedules have been changed to accommodate other factors.

The proposed revision would avoid the necessity of performing a Type A test at ONS2 about 6 months prior to the 10^{th} year anniversary of the completion of the last Type A test, and would also avoid the necessity of performing a Type A test at ONS3 about eight months prior to the 10^{th} year anniversary of the completion of the last Type A test. It would also extend the period from 120 months (10 years) to no longer than 139 months between successive tests. In terms of refueling outages, this extension would move the performance of the next ILRT from ONS2 refueling outage #26 (2EOC26) to ONS2 refueling outage #27 (2EOC27), and would move the performance of the next ILRT from ONS3 refueling outage #27 (3EOC27) to ONS3 refueling outage #28 (3EOC28).

The leak-tight integrity of the penetrations and isolation valves are verified through Type B and Type C LLRTs and the overall leak-tight integrity and structural integrity of the primary containment is verified through a Type A test (ILRT) as required by 10 CFR Part 50, Appendix J. These tests are performed at the design-basis accident pressure. The testing frequency for Type B and Type C tests is not affected by the proposed amendment and will continue to be performed in accordance with NEI 94-01, Revision 0, as endorsed by RG 1.163.

The NRC staff concludes that the licensee's program for measuring containment leakage is being conducted in accordance with the requirements of TS 5.5.2.

3.4 Containment Pressure Boundary Evaluation

The primary containment at (ONS), also referred to as the reactor building, is a reinforced concrete structure which consists of a post-tensioned reinforced concrete cylinder and dome connected to and supported by a massive reinforced concrete foundation slab. The containment design includes ungrouted tendons where the cylinder wall is pre-stressed with a post-tensioning system in the vertical and horizontal directions, and the dome roof is pre-stressed using a three-way tensioning system.

The entire interior surface of the structure is lined with a 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. The mechanical penetrations and access openings are designed, fabricated, inspected, and installed in accordance with Subsection B, Section III, of the ASME Boiler and Pressure Vessel Code. All piping and ventilation penetrations are of the rigid welded type and are solidly anchored to the reactor-building wall or foundation slab, thus precluding any requirements for expansion bellows. The reactor building is designed for an internal pressure of 59 pounds per square inch gage (psig).

The overall integrity (structural and leak-tight integrity) of the primary containment is verified by a Type A ILRT and the integrity of the penetrations and isolation valves are verified by Type B and Type C LLRT as required by 10 CFR Part 50 Appendix J. These tests are performed to verify the essential leak tight characteristics of the containment structure at the design basis accident pressure. The Type A test also provides a verification of structural integrity. The leakage rate testing requirements of 10 CFR Part 50 Appendix J, Option B (Type A, Type B and Type C tests), and the Containment Inservice Inspection (CISI) requirements mandated by 10 CFR 50.55a, assist in ensuring the continued leak-tight and structural integrity of the containment during its service life. Therefore, this portion of the evaluation is focused on deterministic leakage integrity and structural integrity of the containment based on the licensee's implementation of its leak rate-testing program and its CISI program for management of containment degradation.

The following terminology is used in describing containment testing. P_a is the calculated peak containment internal pressure for the design basis loss-of-coolant accident, and is 59 psig. L_a is the maximum allowable containment leakage rate with the pressure at P_a, and is currently 0.20% of the containment air weight per day. Prior to 2006, L_a was 0.25% of the containment air weight per day. TS 5.5.2 states that the as-found leakage rate acceptance criterion is $\leq 1.0\ L_a$. TS 5.5.2 also requires the licensee to follow the guidelines of RG 1.163, which endorses NEI 94-01. NEI 94-01 also requires the as-left leakage rate to be $\leq 0.75\ L_a$. The licensee stated that previous Type A testing confirmed that the ONS2 and ONS3 containment leakage is acceptable, with considerable margin, with respect to the TS acceptance criterion of 0.20% of containment air weight per day at the design basis accident pressure. In Section 4.7 of the licensee's application, the licensee reported a historical summary of results of Type A tests performed on the ONS2 and ONS3 containments that demonstrate that the containments have a history of leak-tightness and structural integrity. There have been no ILRT failures for either ONS2 or ONS3. The last two Type A tests were successfully performed for ONS2 in May 2004 and June 1993 at a test pressure of 60 psig with as-found leak rates, in percent air weight per day, of 0.0937 and 0.1509, respectively. The last two Type A tests were successfully performed for ONS3 in December 2004 and September 1992 at a test pressure of 59 psig with as-found leak rates, in percent air weight

per day, of 0.0715 and 0.1196, respectively. These leak rates are less than the current acceptance criterion of 0.20. Based on the previous two successful Type A LLRTs for both ONS2 and ONS3, the current interval for performing Type A tests is 10 years.

The licensee described its program for Type B and Type C testing required by 10 CFR Part 50 Appendix J in Section 4.8 of the application. A review of the Type B and Type C test results tabulated therein for the period since the last Type A test (i.e., from May 2004 through January 2012 for ONS2 and December 2004 through June 2012 for ONS3) show that the maximum pathway leak rate totals for this time period to be historically less than 25 percent of the acceptance limit for ONS2 and less than 15 percent of the limit for ONS3. The licensee noted that as stated in NUREG-1493, Type B and Type C tests can identify over 95 percent of all potential containment leakage paths. The licensee stated that the testing frequency for Type B and Type C tests is not affected by the proposed amendment and will continue to be performed in accordance with NEI 94-01, Revision 0, as endorsed by RG 1.163. Thus, the Type B and Type C LLRT testing will continue to provide a high degree of assurance that containment leak-tight integrity is maintained when the Type A test is extended.

The NRC staff finds that the licensee's program for periodically measuring containment leakage is being satisfactorily conducted in accordance with the requirements of TS 5.5.2. Additionally, the staff finds that the results of containment performance (structural and leak-tightness) from the licensee's containment leakage test program supports the requested 19-month extension to the next Type A test dates.

3.5 Containment Performance Based On the Containment Inservice Inspection (CISI) Program and 10 CFR Part 50 Appendix J Inspections

The licensee stated that it is implementing its CISI Program in accordance with the applicable edition/addenda of Subsection IWE (metallic liner and penetration liners) and Subsection IWL (for concrete and post-tensioning system) of the ASME Code, Section XI, subject to the applicable regulatory conditions, as required by 10 CFR 50.55a(g)(iv). Subsection IWE requires general visual examination of 100 percent of accessible metallic surfaces of the containment pressure boundary three times over a 10-year inspection interval. Subsection IWL requires general visual examination of accessible surfaces of containment concrete and post-tensioning system components of the containment every five years, which would be two examinations over a 10-year interval. Since the Type A test may not coincide with scheduled IWL examinations, TS 5.5.2 requires that accessible surfaces of containment concrete and post-tensioning system components also be visually examined prior to initiating the Type A test but no earlier than 90 days prior to the start of a refueling outage in which a Type A test will be performed. The licensee also stated that, since steam generator replacements (SGRs) have already been completed for both of these units, no major containment modifications that would require a post-repair Type A test are expected to be performed prior to conducting the next Type A test under this proposed change.

In order to satisfy the 10 CFR Part 50 Appendix J, Option B general visual inspections requirement of accessible exterior and interior surfaces of the containment system for structural problems, Regulatory Position C.3 in RG 1.163 requires that these examinations should be conducted prior to initiating a Type A test, and during two other refueling outages before the next

Type A test, if the interval for the Type A test has been extended to 10 years. These examinations are required in order to allow for early uncovering of evidence of structural deterioration.

The licensee stated that it credits the required Subsection IWE general visual examinations of the containment liner, and to the extent possible the required Subsection IWL general visual examinations of containment concrete and post-tensioning system surfaces, towards satisfying the visual inspection requirements of 10 CFR Part 50 Appendix J, Option B. This is in accordance with TS 5.5.2, which requires accessible surfaces of containment metallic pressure retaining components to be visually examined at least three times every 10 years, including during each shutdown for the Type A test, prior to initiating the Type A test. The licensee stated that the ASME Code, Section XI, IWE and IWL examination requirements, in conjunction with the TS 5.5.2 requirements, ensure that visual examination of accessible surfaces of the containment are conducted at appropriate frequencies between each Type A test, in order to satisfy the 10 CFR Part 50 Appendix J, Option B general visual inspections requirements.

In Section 4.1 of the application, the licensee provided its approximate schedule of the Subsection IWE and IWL examinations for the second (current) and third CISI intervals for ONS2 and ONS3, which include examinations since the last Type A test. If the test interval is extended by 19 months as proposed, the schedule indicates that for each unit, there will be three IWE examinations between the last and next Type A tests and one IWE examination scheduled for the outage in which the next Type A test will be performed. Also, the schedule indicates that there will be two IWL examinations completed between the last Type A test and the proposed next Type A test. In addition, per TS 5.5.2, one additional visual inspection of concrete and post-tensioning system surfaces will be conducted prior to the proposed next Type A test, if the test interval is extended as proposed. The NRC staff finds that the licensee's schedule of IWE and IWL examinations in conjunction with TS 5.5.2 inspections, satisfy the general visual inspection requirements of Regulatory Position C.3 of RG 1.163 and therefore, satisfies the visual inspection requirements of 10 CFR Part 50 Appendix J, Option B, for accessible exterior and interior surfaces of the containment system. These examinations or inspections allow for early uncovering of evidence of structural deterioration.

Additionally, in the application the licensee provided a summary of results of IWE and IWL inspections performed in the second (current) CISI interval (7/15/05 – 7/14/14) for ONS2 and ONS3, including IWE augmented examinations using appropriate methods specified in Subsection IWE. In most cases, the results were accepted by examination and in some cases accepted by evaluation. The licensee also indicated that it evaluates potential degradation in inaccessible areas in accordance with the regulatory conditions in 10 CFR 50.55a(b)(2)(viii)(E) and 10 CFR 50.55a(b)(2)(ix)(A). The NRC staff finds that the licensee is appropriately crediting the CISI inspections to meet the 10 CFR Part 50 Appendix J visual inspection requirements. The NRC staff finds that the licensee's CISI implementation plan and schedule, and the described disposition of inspection findings indicate that the licensee is implementing its CISI program satisfactorily to ensure that potential containment degradations for ONS2 and ONS3 are adequately monitored and managed. The staff also finds that the CISI program is unaffected by the proposed amendment, and will continue to provide a reasonable degree of assurance that any containment degradation will be detected and corrected before it can result in a leakage path. Therefore, the NRC staff has determined that the licensee has demonstrated that its implementation of general visual examinations of the accessible containment surfaces, as part of

the CISI program, continues to meet the intent of the requirement in Regulatory Position C.3 of RG 1.163.

Based on the above, the NRC staff finds that the licensee has an adequate LLRT program, CISI program, and procedures in place to periodically examine, monitor and manage structural deteriorations and aging degradation of the pressure-boundary components of the ONS2 and ONS3 containments. The staff also notes that the licensee has satisfactorily monitored implementation of these programs. Based on the information provided by the licensee in its application and assessed by the NRC staff, the primary containment aging degradations and deteriorations are being satisfactorily monitored and managed. Therefore, there is reasonable assurance that the containment integrity will continue to be maintained without undue risk to public health and safety during the requested 19-month extension period until the next Type A test is conducted, as proposed. Therefore, the NRC staff has determined that it is acceptable to grant the TS 5.5.2 revision, as proposed by the licensee, to allow up to a 19-month, one-time extension of the current 10-year ILRT interval for ONS2 and ONS3.

3.6 Risk Analysis

The licensee performed a risk assessment of extending the Type A test interval from 10 years to 11.6 years. The risk assessment was provided in Section 4.11 of the application. In performing the risk assessment, the licensee considered the guidelines from NEI 94-01, Revision 2A; the methodology used in EPRI TR-104285, "Risk Impact Assessment of Revised Containment Leak Rate Testing Intervals," August 1994; NEI's "Interim Guidance for Performing Risk Impact Assessments in Support of One-Time Extensions for Containment Integrated Leakage Rate Test Surveillance Intervals," November 2001; the methodology used for Calvert Cliffs to estimate the likelihood and risk implications of corrosion-induced leakage of steel liners going undetected during the extended test interval; the methodology used in EPRI 1009325, Revision 2, and the methodology improvements in EPRI TR-1018243, "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals," October 2008.

The licensee stated that the findings of the ONS risk assessment confirm the general findings of previous studies that the risk impact associated with extending the ILRT interval from ten years to 11.6 years is "small." The NRC, in NUREG-1493, had previously concluded that reducing the frequency of ILRTs from three per 10 years to one per 20 years was found to lead to only a very small increase in risk. The estimated increase in risk is very small because ILRTs identify only a few potential containment leakage paths that cannot be identified by Type B or Type C testing, and the leaks that have been found by ILRTs have been only marginally above existing requirements. The NRC staff reviewed the licensee's risk assessment and concludes that the risk impact of the extension to 11.6 years is small and there is reasonable assurance that the approval of this extension will not create an undue risk to public health and safety.

3.7 Conclusion

Based on the foregoing evaluation, the NRC staff finds that since the ONS2 and ONS3 containment structural deteriorations and aging degradations are being satisfactorily monitored and managed, there is reasonable assurance that the containment structural and leak-tight integrity will continue to be maintained without undue risk to safety during the requested one-time, 19-month extension period until the next Type A test. Further, the licensee has demonstrated a

satisfactory history of structural and leakage integrity of the ONS2 and ONS3 containments. Therefore, the NRC staff finds it acceptable to grant the TS 5.5.2 revision as proposed by the licensee to allow up to a 19-month one-time extension of the current 10-year ILRT interval for ONS2 and ONS3. This is a one-time approval and future Type A tests must be conducted within the due dates for each interval unless NRC approval is obtained for future extensions.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the South Carolina State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding, which was published in the *Federal Register* on December 11, 2012, 77 FR 73688. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor(s): George Thomas
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Date: August 5, 2013

If you have any questions, please call me at 301-415-2901.

Sincerely,

/RA/

John P. Boska, Senior Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-270 and 50-287

Enclosures:
1. Amendment No. 383 to DPR-47
2. Amendment No. 382 to DPR-55
3. Safety Evaluation

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