



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

April 15, 2020

Vice President, Operations
Entergy Operations, Inc.
Grand Gulf Nuclear Station
P.O. Box 756
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 – ISSUANCE OF AMENDMENT NO. 224 RE: ONE CYCLE EXTENSION OF APPENDIX J INTEGRATED LEAKAGE TEST AND DRYWELL BYPASS TEST INTERVAL (**EXIGENT CIRCUMSTANCES**) (EPID L-2020-LLA-0060)

Dear Sir or Madam:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 224 to Renewed Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1 (Grand Gulf). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 31, 2020, as supplemented by letter dated April 7, 2020. The license amendment request was submitted under exigent circumstances, stating that the extension will minimize exposure of essential and non-essential personnel to COVID-19, and expeditiously return Grand Gulf to service in support of the National Emergency Declaration due to the COVID-19 pandemic.

The amendment allows a one-time extension to the 10-year frequency of the Grand Gulf containment integrated leakage rate test (ILRT) and the drywell bypass leakage rate test (DWBT). These tests are required by Grand Gulf TS 5.5.12, "10 CFR 50 [Title 10 of the *Code of Federal Regulations* Part 50], Appendix J, Testing Program" and TS Surveillance Requirement 3.6.5.1.1, respectively. The change permits existing ILRT and DWBT frequencies to be extended from 11.5 years to 13.5 years between tests. This extension would allow the performance of the next ILRT and DWBT from the scheduled spring 2020 end of cycle (EOC) 22 refueling outage to the spring 2022 EOC 23 refueling outage.

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

Sincerely,

/RA/

Siva P. Lingam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures:

1. Amendment No. 224 to NPF-29
2. Safety Evaluation

cc: Listserv



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

ENTERGY OPERATIONS, INC.

SYSTEM ENERGY RESOURCES, INC.

COOPERATIVE ENERGY, A MISSISSIPPI ELECTRIC COOPERATIVE

ENTERGY MISSISSIPPI, LLC

DOCKET NO. 50-416

GRAND GULF NUCLEAR STATION, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 224
Renewed License No. NPF-29

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Entergy Operations, Inc. (the licensee), dated March 31, 2020, as supplemented by letter dated April 7, 2020, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 224 are hereby incorporated into this renewed license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance and shall be implemented upon issuance of this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Jennifer L. Dixon-Herrity, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility
Operating License No. NPF-29 and
the Technical Specifications

Date of Issuance: April 15, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 224

RENEWED FACILITY OPERATING LICENSE NO. NPF-29

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

Replace the following pages of the Renewed Facility Operating License No. NPF-29 and the Appendix A, Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

Remove

4

Insert

4

Technical Specifications

Remove

3.6-53

5.0-16

Insert

3.6-53

5.0-16

amended, are fully applicable to the lessors and any successors in interest to those lessors, as long as the renewed license of GGNS Unit 1 remains in effect.

- (b) SERI is required to notify the NRC in writing prior to any change in (i) the terms or conditions of any new or existing sale or lease agreements executed as part of the above authorized financial transactions, (ii) the GGNS Unit 1 operating agreement, (iii) the existing property insurance coverage for GGNS Unit 1 that would materially alter the representations and conditions set forth in the Staff's Safety Evaluation Report dated December 19, 1988 attached to Amendment No. 54. In addition, SERI is required to notify the NRC of any action by a lessor or other successor in interest to SERI that may have an effect on the operation of the facility.

- C. The renewed license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

- (1) Maximum Power Level

Entergy Operations, Inc. is authorized to operate the facility at reactor core power levels not in excess of 4408 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

- (2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 224 are hereby incorporated into this renewed license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

During Cycle 19, GGNS will conduct monitoring of the Oscillation Power Range Monitor (OPRM). During this time, the OPRM Upscale function (Function 2.f of Technical Specification Table 3.3.1.1-1) will be disabled and operated in an "indicate only" mode and technical specification requirements will not apply to this function. During such time, Backup Stability Protection measures will be implemented via GGNS procedures to provide an alternate method to detect and suppress reactor core thermal hydraulic instability oscillations. Once monitoring has been successfully completed, the OPRM Upscale function will be enabled and technical specification requirements will be applied to the function; no further operating with this function in an "indicate only" mode will be conducted.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.6.5.1.1</p> <p>Verify bypass leakage is less than or equal to the bypass leakage limit.</p> <p>However, during the first unit startup following drywell bypass leak rate testing performed in accordance with this SR, the acceptance criterion is leakage \leq 10% of the bypass leakage limit.</p>	<p>24 months following two consecutive tests with bypass leakage greater than the bypass leakage limit until two consecutive tests are less than or equal to the bypass leakage limit</p> <p><u>AND</u></p> <p>48 months following a test with bypass leakage greater than the bypass leakage limit</p> <p><u>AND</u></p> <p>-----NOTE----- SR 3.0.2 is not applicable for extensions > 12 months. -----</p> <p>In accordance with the Surveillance Frequency Control Program except next drywell bypass leak rate test performed after the October 19, 2008 test shall be performed no later than plant restart after the End of Cycle 23 Refueling Outage</p>

(continued)

5.5 Programs and Manuals (continued)

5.5.11 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:
 1. A change in the TS incorporated in the license; or
 2. A change to the updated FSAR or Bases that requires NRC approval pursuant to 10 CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.
- d. Proposed changes that do not meet the criteria of either Specification 5.5.11.b.1 or Specification 5.5.11.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

5.5.12 10 CFR 50, Appendix J, Testing Program

This program establishes the leakage rate testing program of the 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 implemented in accordance with the Safety Evaluation issued by the Office of Nuclear Reactor Regulation dated April 26, 1995 (GNRI-95/00087) as modified by the Safety Evaluation issued for Amendment No. 135 to the Operating License, except that the next Type A test performed after the October 19, 2008 Type A test shall be performed no later than the plant restart after the End of Cycle 23 Refueling Outage. For Type B and Type C local leakage rate testing, this program shall be in accordance with the guidelines contained in NEI 94-01, Revision 3-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 2012. Consistent with standard scheduling practices for Technical Specifications required surveillances, intervals for the recommended surveillance frequency for Type A testing may be extended by up to 25 percent of the test interval, not to exceed 15 months. The calculated peak containment internal pressure for the design basis loss of coolant accident, Pa, is 12.1 psig.

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 224 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-29

ENTERGY OPERATIONS, INC., ET AL.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By application dated March 31, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20091M363), as supplemented by letter dated April 7, 2020 (ADAMS Accession No. ML20098F971), Entergy Operation Inc. (Entergy, the licensee) submitted a license amendment request (LAR) to revise the Technical Specifications (TSs) for Grand Gulf Nuclear Station, Unit 1 (Grand Gulf or GGNS).

The proposed amendment would allow a one-cycle extension to the Grand Gulf integrated leak rate test ((ILRT), or Type A test, and the drywell bypass leak rate test (DWBT) from the currently on-going end of cycle (EOC) 22 refueling outage (RFO) to the next EOC 23 RFO . These tests are required by TS 5.5.12, "10 CFR 50 [Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50], Appendix J, Testing Program" for the ILRT and Surveillance Requirement (SR) 3.6.5.1.1 of TS 3.6, "Containment Systems," for the DWBT.

The licensee stated that the request to permit the deferral of the ILRT and DWBT until the spring 2022 RFO is based on the site's performance history and risk insights. The licensee further stated that the extension would minimize exposure of essential and non-essential personnel to COVID-19, and expeditiously return Grand Gulf to service in support of the National Emergency Declaration due to the COVID-19 pandemic by allowing for the timely and efficient release of contracted outage support staff and the transition of non-essential staff personnel to remote working arrangements as soon as possible.

The licensee submitted this request under exigent circumstances consistent with the requirements 10 CFR 50.91(a)(6), which states that exigent circumstances exist when a licensee and the U.S. Nuclear Regulatory Commission (NRC or the Commission) must act quickly, and time does not permit the NRC to publish a *Federal Register* notice allowing 30 days for prior public comment.

The supplemental letter dated April 7, 2020, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the NRC staff's original proposed no significant hazards consideration determination as published in the *The Vicksburg Post*, Vicksburg, Mississippi, on April 7-9, 2020.

2.0 REGULATORY EVALUATION

2.1 Background

Grand Gulf is designed with a General Electric Boiling Water Reactor (BWR) enclosed by a Mark III type pressure suppression containment system consisting of a vapor suppression pool, and a primary containment structure designed to divert the energy released during a design-basis, large-break loss-of-coolant accident (LOCA). The drywell communicates with the primary containment through a series of horizontal vents in the drywell wall. The vents are covered both inside and outside the drywell by water from the annular-shaped suppression pool, which forms a seal between the drywell and the primary containment. The drywell contains the reactor coolant system and other high energy piping systems. The inspections associated with Appendix J testing program are limited to the primary containment structure and its appurtenances. Inspections of the drywell are outside the scope of this program. The Grand Gulf containment is discussed in Section 6.2, "Containment Systems," of the Grand Gulf Updated Final Safety Analysis Report (ADAMS Accession Nos. ML19022A117 and ML19022A0999).

Several tests are performed to ensure the integrity of the containment/drywell function, including the ILRT and DWBT. The primary containment provides a "leak tight" barrier against the potential uncontrolled release of fission products during a LOCA. TS 5.5.12 identifies the primary containment leak rate testing requirements and an overall acceptance criterion for the Type A, Type B, and Type C tests.

The drywell bypass leakage design limit is used to establish the timing of automatic containment sprays following a LOCA. The sprays control the containment pressure to less than its design limit by suppressing steam from the drywell that bypasses the suppression pool. NUREG 1434, "Standard Technical Specifications – General Electric BWR/6 Plants," Revision 4, Volume 1 (ADAMS Accession No. ML12104A195), SR 3.6.5.1.1 describes the surveillance criteria for the DWBT. At Grand Gulf, SR 3.6.5.1.1 the DWBT verifies the bypass leakage \leq 10 percent of the analyzed design limit.

2.2 Licensee's Proposed Changes

The proposed changes in consideration apply to a temporary, additional one-time extension to the next performance of the required Type A containment ILRT and DWBT tests required by the TSs.

The Grand Gulf TS 5.5.12 currently states:

This program establishes the leakage rate testing program of the 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 implemented in accordance with the Safety Evaluation issued by the Office of Nuclear Reactor Regulation dated April 26, 1995 (GNRI-95/00087) as modified by the Safety Evaluation issued for Amendment No. 135 to the Operating License, except that that the next Type A

test performed after the October 19, 2008 Type A test shall be performed no later than the plant restart after the End of Cycle 22 Refueling Outage. For Type B and Type C local leakage rate testing, this program shall be in accordance with the guidelines contained in NEI [Nuclear Energy Institute] 94-01, Revision 3-A, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," dated July 2012. Consistent with standard scheduling practices for Technical Specifications required surveillances, intervals for the recommended surveillance frequency for Type A testing may be extended by up to 25 percent of the test interval, not to exceed 15 months. The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a , is 12.1 psig [pounds per square inch gauge].

In the proposed modification to TS 5.5.12, the performance of the next Type A test is changed to no later than EOC 23 RFO. This is accomplished by replacing the number "22" following the words "End of Cycle" with number "23" in the above TS 5.5.12 excerpt.

Currently, the surveillance frequency for SR 3.6.5.1.1, requiring verification that bypass leakage is less than or equal to the bypass leakage limit, states, in part, "In accordance with the Surveillance Frequency Control Program except next drywell bypass leak rate test performed after October 19, 2008 test shall be performed no later than plant restart after the End of Cycle 22 Refueling Outage."

The licensee is proposing to change the frequency to state, in part, "In accordance with the Surveillance Frequency Control Program except next drywell bypass leak rate test performed after **the** October 19, 2008 test shall be performed no later than plant restart after **the** End of Cycle **23** Refueling Outage." (Changes are in **bold**)

2.3 Regulatory Requirements

The licensee requested a change to the renewed facility operating license for Grand Gulf, in accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit."

Section 10 CFR 50.54(o), "Conditions of licenses," states, in part, that "[p]rimary reactor containments for water cooled power reactors [are] subject to the requirements in Appendix J to [10 CFR Part 50]."

Under Appendix J to 10 CFR Part 50—Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," licensees use a Type A ILRT to verify the overall integrity of the primary containment and Types B and C local leak rate tests (LLRTs) to verify the integrity of the penetrations and isolation valves. These tests are performed to verify the essential leak tight characteristics of the containment structure at the design basis accident pressure, although there are instances where exemptions were granted to perform certain Type B and C tests at pressures lower than design basis accident pressures. Licensees may implement Appendix J's requirements by using either Option A, "Prescriptive Requirements" or Option B, "Performance-Based Requirements." In TS 5.5.12, Grand Gulf chose to carry out this requirement by implementing Option B with some modifications.

Option B requires that the licensee conduct the Type A test at a periodic interval based on historical performance of the overall containment system. Before the licensee can conduct a Type A test and at a periodic interval between tests based on the performance of the

containment system, however, the licensee must perform a general visual inspection of the accessible interior and exterior surfaces of the containment system to uncover structural deterioration that may affect the containment leak tight integrity or structural integrity. When the licensee conducts the Type A, B, and C tests, pursuant to 10 CFR Part 50, Appendix J and TS 5.5.12, the results must not exceed the leakage rate (L_a) with margin. Under SR 3.6.1.1.1, the leakage rate acceptance criterion is $\leq 1.0 L_a$. However, following testing during the first unit startup performed in accordance with 10 CFR Part 50, Appendix J, as modified by approved exemptions, the leakage rate acceptance criteria are less than $0.6 L_a$ for the Type B and C tests, and less than $0.75 L_a$ for the Type A test.

Finally, under Option B, 10 CFR Part 50, Appendix J, states, in part, that "The regulatory guide or other implementation document used by a licensee . . . 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."

The regulations in 10 CFR 50.55a, "Codes and standards," contain the containment in-service inspection (CISI) program requirements that, in conjunction with the requirements of Appendix J, ensure the continued leak tight and structural integrity of the containment during its service life.

The regulations in 10 CFR 50.36, "Technical specifications," state that the TSs include items in specific categories. These categories include: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operations; (3) SRs; (4) design features; and (5) administrative controls.

The regulation in 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," paragraph (a)(1), states, in part, that the licensee "...shall monitor the performance or condition of structures, systems, or components, against licensee-established goals, in a manner sufficient to provide reasonable assurance that these structures, systems, and components, as defined in paragraph (b) of this section, are capable of fulfilling their intended functions. These goals shall be established commensurate with safety and, where practical, take into account industry-wide operating experience."

Grand Gulf was approved for the implementation of the containment leak rate testing provisions of 10 CFR Part 50 Appendix J, Option B, by Amendment No. 135 (ADAMS Accession No. ML021490221) issued by the NRC on April 6, 1998. Based on this amendment, Grand Gulf was approved for:

- Extension of Type A test frequency to at least one test in 10 years based upon two consecutive successful tests.
- Extension of Type B tests to a maximum interval of 10 years based upon completion of two consecutive successful tests.
- Extension of Type C tests up to 5 years based on two consecutive successful tests.

The last ILRT at Grand Gulf, prior to Amendment No. 135, was performed in November 1993. Based on Amendment No. 135, the next ILRT would have been required by November 2003. However, the NRC also issued Amendment No. 164 on January 28, 2004 (ADAMS Accession

No. ML040300152), which granted a license amendment for a one-time extension of the Type A ILRT and DWBT test interval from 10 to 15 years. Consequently, the next ILRT after the November 1993 test was performed in October 2008. After the expiration of the one-time extension, Grand Gulf reverted to 10-year ILRT and DWBT intervals, with the next ILRT and DWBT due in 2018. On December 29, 2017, the NRC staff approved Amendment No. 214 (ADAMS Accession No. ML17334A739), allowing a one-time extension of the Type A ILRT and DWBT test interval from 10 to 11.5 years. This extension allowed the performance of the next ILRT and DWBT from the scheduled spring 2018 EOC 21 RFO to the spring 2020 EOC 22 RFO. The licensee's request dated March 31, 2020, would result in an additional one-time extension of the Type A ILRT and DWBT test, thus increasing the interval between the last test in October 2008 and the next test in spring of 2022 to 13.5 years.

2.4 Regulatory Guidance

NEI 94-01, Revision 0, dated July 1995 (ADAMS Accession No. ML11327A025), specifies an initial test interval of 48 months for the Type A test, but allows an extended interval of 10 years, based upon two consecutive successful tests and supported by a plant-specific risk assessment. It should be noted that Section 9.1 of NEI 94-01, Revision 0, allows the recommended 10-year Type A test interval to be extended by up to an additional 15 months, but with the restriction that this option 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 to every testing interval, which would effectively change the interval permanently to 11.25 years (135 months).

NEI 94-01, Revision 3-A, dated July 2012 (ADAMS Accession No. ML12221A202), provides guidance for extending Type C LLRT intervals beyond 60 months. On February 17, 2016, the NRC staff approved Amendment No. 209 (ADAMS Accession No. ML16011A247) for Grand Gulf. The amendment revised the Grand Gulf TSs to allow for a permanent extension of the Type C leakage rate testing frequency up to 75 months and a reduction of the Type B and C grace intervals that are required by Grand Gulf TS 5.5.12, by including a reference to NEI 94-01, Revision 3-A. The guidance in NEI 94-01, Revision 3-A also has provisions for a permanent extension of the Type A ILRT test interval from 10 to 15 years. By letter dated February 19, 2020 (ADAMS Accession No. ML20050R656), the licensee requested NRC approval for permanent extension of the Grand Gulf Appendix J Type A ILRT frequencies from 10 years to 15 years, and this amendment is currently under NRC review. At present, the maximum ILRT test interval for Grand Gulf after the 2008 test remains at 10 years.

As part of the development of Option B, the NRC also developed Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995 (ADAMS Accession No. ML003740058), to specify a method acceptable to the NRC for complying with Option B. The RG endorses, with certain exceptions, NEI 94-01, Revision 0, as an acceptable method for complying with the provisions of 10 CFR Part 50, Appendix J, Option B. Option B requires that the RG or other implementation document used by a licensee to develop a performance-based leakage rate testing program be included by general reference in the TSs.

However, in TS 5.5.12, the licensee chose not to reference RG 1.163, but instead references the NRC staff's safety evaluation (SE) that was the basis for the earlier exemption from the 10 CFR Part 50, Appendix J requirements granted to Grand Gulf on April 26, 1995 (ADAMS Accession No. ML021480397). Based on the differences between RG 1.163 (and the document it endorses, NEI 94-01) and the April 26, 1995, exemption to 10 CFR Part 50, Appendix J and the associated NRC staff SE, as modified by the SE issued for Amendment No. 135 to the

operating license, the NRC staff determined that use of the guidance in the NRC staff's SE is consistent with the intent of RG 1.163, and is therefore acceptable (ADAMS Accession No. ML021490221). The approved exemption authorized Grand Gulf to use a program similar to 10 CFR Part 50, Appendix J, Option B, in that it allowed primary containment leakage rate testing intervals to be based on performance of the structures, systems, and components involved. The test methods and criteria for containment leakage rate testing used by the licensee were not affected by this exemption.

Prior to the issuance of Amendment No. 209, Grand Gulf TS 5.5.12 contained a statement regarding the extension of surveillance frequencies for Type A, B, and C testing, as follows:

Consistent with standard scheduling practices for Technical Specifications required surveillances, intervals for the recommended surveillance frequency for Type A, B, and C testing may be extended by up to 25 percent of the test interval, not to exceed 15 months.

By Amendment No. 209, the statement was revised to delete Type B and C tests from its applicability, but retained the applicability of Type A tests. Therefore, the current Grand Gulf TS contains a provision to extend the 10-year Type A test interval by an additional 15 months.

Grand Gulf TS 1.1 "Definitions," defines L_a as "The maximum allowable primary containment leakage rate, L_a , shall be 0.682% of primary containment air weight per day at the calculated peak containment pressure (P_a)."

Grand Gulf TS 5.5.12 states, in part, that "The calculated peak containment internal pressure for the design basis loss of coolant accident, P_a , is 12.1 psig."

The NRC final safety evaluation report (SER) for NEI 94-01, Revision 2, and Electric Power Research Institute (EPRI) Technical Report (TR)-1009325, Revision 2, August 2007, "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals," dated June 25, 2008 (ADAMS Accession Nos. ML081140105 and ML072970208, respectively), states that NEI 94-01, Revision 2, describes an acceptable approach for implementing the optional performance-based requirements of 10 CFR Part 50, Appendix J, Option B. The NRC staff concluded that NEI 94-01, Revision 2, is acceptable for referencing by licensees proposing to amend their containment leakage rate testing TSs, subject to the specific limitations and conditions listed in Section 4.0 of the SER. NEI 94-01, Revision 2-A (ADAMS Accession No. ML100620847), which incorporates the regulatory positions stated in RG 1.163, includes provisions for extending Type A test intervals up to 15 years.

The guidance in EPRI TR-1009325, Revision 2-A, provides a generic assessment of the risks associated with a permanent extension of the ILRT surveillance interval to 15 years, and a risk-informed methodology/template to be used to confirm the risk impact of the ILRT extension on a plant-specific basis. Probabilistic risk assessment (PRA) methods are used in combination with ILRT performance data and other considerations to justify the extension of the ILRT surveillance interval. This is consistent with the guidance provided in RG 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," Revision 3, dated January 2018 (ADAMS Accession No. ML17317A256) and RG 1.177, "An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications," Revision 1, dated May 2011 (ADAMS Accession No. ML100910008) to support changes to surveillance test intervals.

The NRC staff has previously issued a significant number of license amendments for licensees of reactor units that have requested to extend their Type A test intervals to 15 years on a permanent basis, based primarily on PRA criteria (ADAMS Accession Nos. ML19022A324, ML18337A422, ML15028A308, ML17103A235, etc.). The licensee's proposed request for Grand Gulf is on a one-time basis and increases the Type A test interval by an additional 2 years (from 11.5 years to 13.5 years). Also, the NRC staff refers to 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 (ADAMS Accession No. ML080020394), for guidance on justifications that would not be acceptable for extending ILRT intervals.

RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," Revision 2, dated March 2009 (ADAMS Accession No. ML090410014), describes one acceptable approach for determining whether the technical adequacy of the PRA, in total or the parts that are used to support an application, is sufficient to provide confidence in the results, such that the PRA can be used in regulatory decisionmaking for light-water reactors.

3.0 TECHNICAL EVALUATION

3.1 Historical Leakage Rate Test Results

The licensee provided the Grand Gulf historical results of ILRT tests, Type B and C LLRT Combined Trend Summary, and DWBT test results. In addition, the LAR also included a detailed discussion of the inservice inspection (IWE/IWL) program and the maintenance rule monitoring in place at Grand Gulf.

3.1.1 Integrated Leakage Rate Testing History

In Section 3.3.4 of the Enclosure to the LAR dated March 31, 2020, the licensee reported a historical summary of results of Type A tests performed that demonstrate the containment has a history of leakage well under acceptance limits. As stated in Section 3.7.1 of the Enclosure to the LAR, performance of the ILRT (i.e., Type A tests) per 10 CFR 50, Appendix J demonstrates the leak-tightness and structural integrity of the containment.

Five operational Type A tests have been performed on Grand Gulf. Table 3.3.4-1 in the enclosure to the LAR, "Integrated Leakage Rate Testing (ILRT) History," provide the test results for the five ILRTs including the as-left leakages.

The results, in percent containment air weight per day leakage, ranged between 0.083 to 0.248, which is less than the applicable acceptance criteria at the time of the tests. The applicable acceptance criteria was 0.328 percent weight per day until the 1993 test. It was later increased to TS limit of 0.75 L_a (0.5115 percent weight per day) during the implementation of alternate source term at Grand Gulf.

The performance leakage rate is calculated as the sum of the Type A upper confidence limit and as-left minimum pathway leakage rate for all Type B and C pathways that were in service, isolated, or not lined up in their test position (i.e., drained and vented to containment atmosphere) prior to performing the Type A test. In addition, leakage pathways that were isolated during performance of the test because of excessive leakage must be factored into the performance determination. Table 3.3.5-1 in the enclosure to the LAR, "Verification of Current

Extended ILRT Interval for GGNS,” provided the performance leakage determination for the most recent ILRT tests in 1993 and 2008.

The NRC staff reviewed the information related to the licensee’s proposal to extend 10 CFR Part 50, Appendix J, Type A ILRT test intervals, including historical leakage test results for the tests. The NRC staff finds that there is reasonable assurance that the licensee’s program for periodically measuring containment leakage is being satisfactorily conducted in accordance with the requirements of TS 5.5.12. The results provided in Section 3.3 of the enclosure to the LAR, “Justification for the Technical Specification Change,” indicate that the previous ILRT Type A tests showed containment performance leakage rates below the maximum allowable containment leakage rate.

3.1.2 Local Leak Rate Testing (Type B and C) History

Table 3.5.1-1 in the enclosure to the LAR, “Types B and C LLRT Combined As-Found/As-Left Trend Summary,” provides trend summaries for Grand Gulf from 2008 to 2018 (total of six RFOs).

As stated in SR 3.6.1.1.1, the leakage rate acceptance criteria for Grand Gulf are:

The leakage rate acceptance criterion is $\leq 1.0 L_a$. However, during the first unit startup following testing performed in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, the leakage rate acceptance criteria are $< 0.60 L_a$ for the Type B and Type C tests, and $< 0.75 L_a$ for Type A tests.

The containment performance is demonstrated by the as-found minimum pathway summations, whereas the as-left maximum pathway summations signify the acceptance criteria for restart. Section 3.5.1 of the enclosure to the LAR, “Containment Leakage Rate Testing Program – Type B and C Testing Program,” states that “[p]er TS 5.5.12 and SR 3.6.1.1.1 program requirements, the allowable maximum pathway total Types B and C leakage is $0.6 L_a$ where $0.6 L_a$ equals approximately 198,000 sccm [standard cubic centimeters per minute] (L_a equal approximately 330,000 sccm).” Per TS 1.1, “Definitions,” “[t]he maximum allowable primary containment leakage rate, L_a , shall be 0.682% of primary containment air weight per day at the calculated peak containment pressure (P_a).” The results show that there have been no “as-found” aggregate Type B and C LLRT failures that resulted in exceeding the acceptance criterion of $0.6 L_a$. The results reported in the LAR, and confirmed by the NRC staff, show:

- The “As-Found” minimum pathway leakage rate for GGNS shows an average of 13.22% of $0.6 L_a$ with a high of 19.32% of $0.6 L_a$, or $0.1159 L_a$.
- The “As-Left” maximum pathway leakage rate for GGNS shows an average of 40.63% of $0.6 L_a$ with a high of 61.68% of $0.6 L_a$, or $0.3701 L_a$.

While the results indicate a good margin between the combined Type B and C test totals and the performance criterion ($0.6 L_a$), the NRC staff observed a slight increase in the leakage rate trend from years 2012 to 2016 RFOs. However, the NRC staff notes that higher leakage rates are not representative of an adverse trend because Option B affords the licensee greater flexibility in adjusting the administrative limits of leakage for Type B and C penetrations, while ensuring that the combined Type B and C test results remain below the acceptance criterion of $0.6 L_a$ with margin. The NRC staff finds that the licensee has maintained an acceptable margin, in spite of an increase in the leakage rate trend. The NRC staff also notes that

2018 RFO leakage rates trended downwards. The results of the Type B and C tests suggest that performance criteria are unlikely to be exceeded during the proposed extension to conduct the next ILRT test.

Table 3.5.1-2 in the enclosure to the LAR, "Types B and C LLRT Program Implementation Review," indicated that three valves that are on extended test intervals exceeded their administrative leakage values during RFOs 20 and 21. For two of these valves, the leakages were fixed in the same outage. Per the program requirements, all the valves were reverted to 24-month testing frequencies. As stated by the licensee in the supplement to the LAR dated April 7, 2020, the third valve exceeded its administrative limit in the following outage RFO 22, which is currently taking place. The licensee stated that the resultant increase of valve leakage from the RFO 21 as-left value to the RFO 22 as-found value represents 0.34 percent of the overall margin to $0.6 L_a$ and would not challenge the overall margin to $0.6 L_a$. The licensee is pursuing two options: one is to replace the valve and the other is to eliminate the valve, as it has been determined that the valve is not necessary. In the supplement to the LAR dated April 7, 2020, the licensee also noted that three components have exceeded the administrative leakage limits in both RFOs 20 and 21. After the three components were repaired or replaced in RFO 21, they exhibited leakage characteristics that are significantly below the administrative leakage limits. There were a small number of other instances where the leakages exceeded administrative values. They were fixed in the same outage or accepted in as is condition to fix in the later outages due to the margins available in the overall testing results. The NRC staff concludes that the licensee has appropriately addressed valves underperforming their administrative criteria in accordance with the Primary Containment Leakage Rate Testing Program and NEI 94-01, Revision 3-A.

The data contained in Table 3.5.1-2 of the LAR indicates that the "as-found" minimum pathway summations represent a high quality of maintenance of Type B and C tested components, while the "as-left" maximum pathway summations represent an effective management of the "10 CFR 50, Appendix J, Testing Program" by the program owner. Type B and C tests can identify the vast majority of all potential leakage paths. The licensee is not proposing any changes to the Type B and C test intervals. Based on the above, the NRC staff concludes that continued testing of scheduled Type B and C components during 2018 Cycle 22 RFO and beyond up to the start of Cycle 23 RFO will provide a measure of assurance of the leak-tightness of the containment.

3.1.3 Current RFO 22 Testing of Type B and C Components

As of April 6, 2020, Grand Gulf has completed 92 percent of the "as-found" Type B and C LLRTs and 29 percent of the "as-left" LLRTs for RFO 22. Type B and C LLRT results indicate < 33 percent of the $0.6 L_a$ margin for Maximum Pathway Leakage and < 15 percent of the $0.6 L_a$ margin for Minimum Pathway Leakage. There have been four "as found" LLRT components that exceeded the administrative leakage limits during RFO 22. Two of the four RFO 22 components, which exceeded the local administrative limits, were corrected by completing actuator rebuilds. The leakage values of the other two components were accepted, and no further work is planned for RFO 22. The leakage values were acceptable, as neither of the exceeded administrative limits challenged the overall margin to $0.6 L_a$, and their respective penetrations were not inoperable.

3.1.4 Drywell Bypass Leakage Rate Testing History

The current interval for the Grand Gulf DWBT surveillance is once every 120 months. The DWBT acceptance criterion in the TSs is ≤ 10 percent of the analyzed design limit. Grand Gulf SR 3.6.5.1.1 states:

Verify bypass leakage is less than or equal to the bypass leakage limit.

However, during the first unit startup following drywell bypass leak rate testing performed in accordance with this SR, the acceptance criterion is leakage $\leq 10\%$ of the bypass leakage limit.”

The frequency of 120 months is qualified by the following considerations in Grand Gulf SR 3.6.5.1.1. In the event that a test is performed with the bypass leakage greater than its limit, the test frequency becomes once every 48 months. Following two consecutive tests with bypass leakage greater than its limit, the test frequency is once every 24 months until two consecutive tests are less than or equal to the bypass leakage limit.

The last DWBT was successfully conducted on October 19, 2008, and is required to perform the next test no later than plant restart after EOC 22 RFO. The licensee is requesting a change to conduct the next DWBT performed after the October 19, 2008, to no later than the plant restart after the EOC 23 RFO.

The purpose of the change is to make the DWBT test coincide with the Appendix J, Type A test, because the two tests share test equipment and system lineups. Thus, the licensee has accompanied its request for a one-time Type A test interval extension to 13.5 years with a request for a one-time extension of the DWBT interval to 13.5 years.

The NRC staff has previously approved similar extension requests for DWBT on the basis that the likelihood of significant bypass leakage is acceptably low, based on the results of previous DWBT test results, and other monitoring indicative of drywell boundary integrity (ADAMS Accession Nos. ML16287A599 and ML17334A739).

In the current LAR dated March 31, 2020, the licensee stated that “During RFO 22, Entergy performed structural integrity walkdowns of the drywell interior wall and the inner and outer Containment walls to identify and document any signs of cracks, corrosion, peeling, chipped or flaked sections of concrete, or any damage to the walls or liner. The structural integrity walkdowns did not identify any new or significant issues.”

Grand Gulf SR 3.6.5.1.2 requires the visual inspection of the exposed accessible interior and exterior surfaces of the drywell at a frequency of once prior to performance of each Type A test required by SR 3.6.1.1.1. The performance of inspections in accordance with the requirements for Appendix J will be utilized to ensure compliance with the visual inspection per NEI 94-01, Revision 3-A.

The exposed accessible drywell interior and exterior surfaces are inspected to ensure there are no apparent physical defects that would prevent the drywell from performing its intended function. This SR ensures that drywell structural integrity is maintained. The frequency was chosen so that the interior and exterior surfaces of the drywell can be inspected in conjunction with the inspections of the primary containment required by 10 CFR Part 50, Appendix J and American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME

Code), Section XI, Subsections IWE and IWL. Due to the passive nature of the drywell structure, the specified frequency is sufficient to identify component degradation that may affect drywell structural integrity.

Based on the RFO 22 walkdown results and the SR, the NRC staff concludes that extending the DWBT until next scheduled ILRT in RFO 23 is acceptable.

3.1.5 Summary

As discussed in NUREG-1493, "Performance-Based Leak-Test Program," dated September 1995 (ADAMS Accession No. ML20098D498), Types B and C tests can identify the vast majority of all potential containment leakage paths in an ILRT. Types B and C testing during the interval between ILRT tests will continue to provide a high degree of assurance that containment integrity is maintained. Based on the information provided in the LAR and its supplement, the NRC staff concludes that Grand Gulf has a sound Type B and C testing program that supports granting the requested one-cycle extension to the next Type A test. It is a practice to conduct the ILRT and DWBT tests in the same outage for planning, equipment utilization, and economic reasons. Based on the RFO 22 walkdown results, the NRC staff concludes that extending the DWBT until next scheduled ILRT in RFO 23 is acceptable.

3.2 Containment Inservice Inspection (ISI) Program

The licensee stated in Section 3.5.4 of the enclosure to the LAR, "Containment Inservice Inspection Program," that it is implementing its CISI Program in accordance with the applicable edition/addenda of Subsections IWE/IWL of ASME Code, Section XI, Division 1, subject to the applicable regulatory conditions as required by 10 CFR 50.55a(g)(4), "Inservice inspection standards requirement for operating plants." The CISI Program Section for ASME Section XI Class Concrete Containment (Class CC) Components and Class Metal Containment (Class MC) Pressure-Retaining Components for the fourth 10-year CISI interval is developed using the ASME Code, Section XI, 2007 Edition through the 2008 Addenda. As stated by the licensee in the LAR, this fourth 10-year interval program for the performance of CISI complies with ASME Code, Section XI, Subsection IWE-2411, which commenced on December 1, 2017, and will end on November 30, 2027. The LAR stated that these dates were determined from the regulatory requirements of 10 CFR 50.55a.

The three periods, into which ASME Section XI requires the licensee divide the 10-year interval, are as follows: First Period, December 1, 2017, through November 30, 2020 (3 years); Second Period, December 1, 2020, through November 30, 2024 (4 years); and Third Period, December 1, 2024, through November 30, 2027 (3 years). Class MC pressure-retaining components require general visual examination of 100 percent of accessible metallic surfaces of the containment pressure boundary three times over a 10-year inspection interval, pursuant to 10 CFR 50.55a(b)(2)(ix)(E). Pursuant to IWL-2410(a) and (c), general visual examinations of accessible surfaces of containment concrete and post-tensioning system components of the containment are conducted every 5 years, which would be two examinations over a 10-year interval. The licensee performs general visual examinations for ASME Code, Section XI, Subsection IWE in accordance with Program Section, "General Visual Examinations of Class MC Components;" and general and detailed examinations for Subsection IWL in accordance with "General and Detailed Visual Examinations of Concrete Containments."

Summary of Recent CISI Examination Results

In Section 3.5.5 of the Enclosure to the LAR, "RF20 Summary of Examinations," the licensee provided Table 3.5.5-2, "Containment Visual Inspections (IWE)" and Table 3.5.5-3, "Containment Visual Inspections (IWL)," that provided examination results for the third CISI interval IWE and IWL inspections performed in RFOs 20 and 19. Components examined included the containment dome and building liner, lower and upper personnel airlock, and suppression pool underwater surfaces.

The results of RFO 19 (spring 2014) and RFO 20 (March 2016) ASME Section XI, Subsection IWE VT-3 visual inspections were characterized by the licensee as "Items were previously identified and evaluated" and "No additional degradation noted." Indications noted during the suppression pool liner inspection were determined acceptable by examination in accordance with ASME IWE requirements. Five areas were documented with noted degradations, however the minimum plate thickness for all five areas remained above the nominal plate thickness of 0.225 or 0.250 inches (depending on location). The inspection results for the last two IWL visual inspections performed in RFO 18 (April 2012) and RFO 20 were characterized by the licensee as "Indications were previously identified and evaluated with no changes." The NRC staff finds the examination results to be acceptable because it demonstrated satisfactory performance and implementation of the CISI program that is consistent with the guidance of NEI 94-01.

In the LAR, the licensee identified IWE augmented examination of containment surface areas requiring Category E-C examination. Table 3.5.5-2 listed several component identification numbers associated with the containment liner plate and five areas associated with the suppression pool liner, which required ultrasonic examination. The five areas identified were in LAR Table 3.5.5-2 as 1-FP-02F-2, two areas under 1-FP08A-1, 1-FP-040-4 and 1-WP-01C-3. The suppression pool underwater surface indications resulted in a metal loss between 9-55 mils (0.009-0.055 inch), which was determined by the licensee to be acceptable. The licensee evaluates potential degradation in inaccessible areas in accordance with 10 CFR 50.55a(b)(2)(viii)(E) and 10 CFR 50.55a(b)(2)(ix)(A).

License Renewal Aging Management Programs (AMPs)

In Section 3.7 of the Enclosure to the LAR, "License Renewal Aging Management," the licensee also identified several license renewal AMPs for the Grand Gulf primary containment. In the LAR, the licensee stated that these programs and activities were developed to support renewal of the original operating license for Grand Gulf that was scheduled to expire on November 1, 2024. The renewed operating license for Grand Gulf was issued by the NRC on December 1, 2016, extending the original licensed operating term by 20 years to November 1, 2044. As part of the license renewal effort, the licensee demonstrated that commitments related to the aging effects applicable for the systems, structures and components within the scope of license renewal would be adequately managed during the period of extended operation.

The following AMPs, consistent with the corresponding programs described in NUREG-1801, Revision 2, "Generic Aging Lessons Learned (GALL) Report," dated December 2010 (ADAMS Accession No. ML103490041) and related activities, are credited with the aging management of the Grand Gulf primary containment:

- "10 CFR 50 Appendix J Program," which monitors leakage rates through the containment pressure boundary including penetrations and access openings;
- "ISI-IWE Program," which manages aging effects for the containment liners and their integral attachments, including connecting penetrations and parts forming the leaktight boundary;
- "ISI-IWL Program," which manages the reinforced concrete of the primary containment structure;
- "Structures Monitoring Program," developed and implemented to meet 10 CFR 50.65, "Requirements for monitoring the effectiveness of Maintenance at Nuclear Power Plants," RG 1.160, Revision 4, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," dated August 2018 (ADAMS Accession No. ML18220B281), and NUMARC 93-01, Revision 4F, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," dated April 2018 (ADAMS Accession No. ML18120A069), and is implemented by procedures that require periodic visual inspections by personnel qualified to monitor structures and components for aging effects such as those described in the American Concrete Institute (ACI) Standards 349.3R, "Report on Evaluation of Repair of Existing Nuclear Safety-Related Concrete Structures," and ACI 201.1R, "Guide for Conducting Visual Inspection of Concrete in Service;" and
- "Protective Coating Monitoring and Maintenance Program," which provides for aging management of Service Level (SL) I coatings inside the Grand Gulf primary containment, the failure of which could adversely affect the operation of the emergency core cooling system (ECCS) by clogging the ECCS suction strainers.

SL I Containment Coatings and Assessment Program

Sections 3.5.3, "Service Level [I] (SL [I]) Coatings Assessment," and 3.7.4, "Protective Coating Monitoring and Maintenance Program," of the enclosure to the LAR describe the SL I Coatings and Assessment Program that monitors the condition of SL I coatings and provides an effective method to assess coating condition through visual inspections to identify degraded or damaged coatings. In the LAR, the licensee states that this program monitors and maintains SL I coatings used inside containment where the coating failure could adversely affect the operation of ECCS post-accident fluid systems. The program addresses all coated surfaces inside containment (e.g., steel liner, structural steel, supports, penetrations, and concrete walls and floors) and some SL III coatings outside containment. In LAR Table 3.5.5-2, the licensee presented coating related examination results for the containment liner during RFO 20 (March 2016). A summary of the results concluded that "Items were previously identified and evaluated acceptable" with "No additional degradation noted during this exam."

According to the Entergy Program Plan, coating inspections in the drywell are to be performed during RFOs while containment inspections may be performed during operation. The plan

states a general walkdown should be performed every RFO or other major maintenance outages and may coincide with plant-specific commitments (e.g., plant TS, trending results, IWE/IWL inspections, etc.), which may affect the frequency of coating assessments. The SL I Protective Coating Program assures the effects of aging are managed such that applicable components will continue to perform their intended functions consistent with the combined licensing basis through the period of extended operation and is consistent with the program described in NUREG-1801, Section XI.S8, "Protective Monitoring and Maintenance Coating Program."

RFO 22 Containment Testing and Inspection

Entergy stated that Grand Gulf is currently conducting RFO 22 (spring 2020) activities and is performing tests and inspections associated with containment that will be completed prior to startup. Per the licensee's supplemental letter, Entergy reported that 92 percent of the planned LLRTs have been completed as of April 6, 2020. During RFO 22, the entire IWE scope will be performed, except for the suppression pool liner and bolted connections, both of which are only required to be inspected once per interval. Thus far in RFO 22, Entergy has completed the planned IWE scope, except for a limited portion, due to limitations in removing foreign material exclusion (FME) protective barriers preventing access to some areas on the containment liner. Inspection of these areas is being coordinated with FME barrier removal during containment closeout and will be completed prior to completion of the outage. As of the LAR submittal, all inspection results are still under review, but there have been no significant findings. During RFO 22, Entergy performed structural integrity walkdowns of the drywell interior wall and the inner and outer containment walls to identify and document any signs of cracks, corrosion, peeling, chipped or flaked sections of concrete, or any damage to the walls or liner. In the LAR, the licensee also stated that structural integrity walkdowns currently performed for RFO 22 did not identify any new or significant issues; and that Entergy did not perform any IWE or IWL inspections during RFO 21 (spring 2018).

The NRC finds that the licensee has an adequate CISI program in place as demonstrated by the implementation of overlapping inspection activities performed as part of the IWE/IWL programs and activities developed to support renewal of the original operating license, inspections of SL I protective coatings, and the maintenance rule structural monitoring program. These programs periodically examine, monitor and manage structural deterioration and aging degradation of the Grand Gulf containment pressure boundary such that the primary containment can perform its intended function as a leak-tight barrier consistent with the guidance contained in NEI 94-01. The NRC staff also finds that the CISI program will continue to provide reasonable assurance that any containment degradation will be detected and corrected before it can result in a leakage path.

3.3 NEI 94-01, Revision 2-A Conditions

The NRC staff found that the use of NEI 94-01, Revision 2-A, was acceptable for referencing by licensees proposing to amend their TSs to permanently extend the ILRT surveillance interval to 15 years, provided the conditions specified in Table 3.8.1-1 in the enclosure to the LAR are satisfied.

Limitation and Condition 1

Limitation and Condition 1 specifies that for calculating the Type A leakage rate, the licensee should use the definition in NEI 94-01, Revision 2-A, in lieu of that in American National Standards Institute/American Nuclear Society (ANSI/ANS)-56.8-2002.

The licensee stated in the LAR that Grand Gulf will use the definition in NEI 94-01 Revision 3-A, Section 5.0. This definition has remained unchanged from Revision 2-A to Revision 3-A of NEI 94-01 and is the one identified as acceptable. Therefore, the NRC staff finds the licensee has addressed and satisfied Limitation and Condition 1.

Limitation and Condition 2

Limitation and Condition 2 stipulates that the licensee submits a schedule of containment inspections to be performed prior to and between Type A tests.

The licensee provided in the LAR a discussion of the containment inspection programs and schedule in Section 3.5.4; Table 3.5.4-1, "GGNS Projected IWL Examination Periods"; Figure 3.5.4-1, "GGNS 4th Interval IWE and IWL Schedule"; and Figure 3.5.4-2, "GGNS 5th Interval IWE and IWL Schedule." Therefore, the NRC staff finds the licensee addressed and satisfied Limitation and Condition 2.

Limitation and Condition 3

Limitation and Condition 3 stipulates that the licensee addresses the areas of the containment structure potentially subjected to degradation.

In Section 3.8.1 of the enclosure to the LAR, "Limitations and Conditions Applicable to NEI 94-01, Revision 2-A," the licensee referred to Section 3.5.4, Table 3.5.4-6, "GGNS Unit 1 Code Category IWE Summary," and Table 3.5.4-7, "GGNS Unit 1 Code Category IWL Summary." These tables discuss areas of the Grand Gulf containment building that are subject to Classes MC and CC examinations. The licensee states that inspection evaluations for the fourth inspection interval, which began December 1, 2017, are performed in accordance with ASME Section XI, 2007 Edition through the 2008 Addenda. The acceptance criteria for the continued service of components are subject to the rules of ASME Section XI, Subsections IWE/IWL-3000, and the regulatory requirements of 10 CFR 50.55a. The licensee also stated that the evaluations are performed by the responsible individual for IWE inspections and by the registered professional engineer for IWL inspections.

The licensee provided the results of IWE inspections in RFO 20 (March 2016) of suppression pool underwater surfaces, containment building liner, containment dome liner, and lower and upper personnel airlocks in Table 3.5.5-2, and the inspection results were evaluated and characterized as "Items were previously identified and evaluated," with "No additional degradation noted," or the areas were reviewed and approved by engineering. The licensee also provided the results of IWL inspections in RFO 20 (March 2016) and RFO 18 (April 2012) for components in Table 3.5.5-3 and the inspection results were evaluated and all were accepted by examination.

Based on the information above, the NRC staff finds that the licensee provided an acceptable level of information of recent IWE and IWL inspections that were evaluated as acceptable and

performed in accordance with the ASME Code, Section XI. Therefore, the NRC staff concludes that the licensee has adequately addressed Limitation and Condition 3.

Limitation and Condition 4

Limitation and Condition 4 specifies that the licensee addresses any tests and inspections performed following major modifications to the containment structure, as applicable.

The licensee states that "There have been no major containment repairs or modifications performed on the GGNS Containment Vessel."

Since the licensee stated that it had no major containment repairs or modifications performed on the Grand Gulf containment vessel, the NRC staff finds that the licensee has adequately addressed Condition 4.

Limitation and Condition 5

Limitation and Condition 5 specifies that the normal Type A test interval should be less than 15 years. If a licensee has to utilize the provision of Section 9.1 of NEI 94-01, Revision 2-A, related to extending the ILRT interval beyond 15 years, the licensee must demonstrate to the NRC staff that it is an unforeseen emergent condition.

The licensee's response in the LAR indicates acknowledgement and acceptance of this NRC staff position. For the condition that the licensee follow the requirements of NEI 94-01, Revision 2-A, Section 9.1, the licensee stated it would follow the requirements of NEI 94-01, Revision 3-A, Section 9.1. This requirement, however, has remained unchanged from NEI 94-01 Revision 2-A to Revision 3-A. Therefore, the NRC staff finds that the licensee addressed and satisfied Limitation and Condition 5.

Limitation and Condition 6

Limitation and Condition 6 specifies that for plants licensed under 10 CFR Part 52, applications requesting a permanent extension of the ILRT surveillance interval to 15 years should be deferred until after the construction and testing of containments for that design have been completed and applicants have confirmed the applicability of NEI 94-01, Revision 2-A, and EPRI TR 1009325, Revision 2, including the use of past containment ILRT data.

Limitation and Condition 6 is not applicable to Grand Gulf as it was not licensed under 10 CFR Part 52.

3.3.1 Conclusion Related to the Six Limitations and Conditions Listed in NEI 94-01, Revision 2, Section 4.1, of the NRC SER

The NRC staff evaluated Grand Gulf's response for each of the six limitations and conditions listed above and determined that the licensee adequately satisfied all of the limitations and conditions identified in NEI 94-01, Revision 2, Section 4.1, of the NRC SER. Therefore, the NRC staff finds it acceptable for Grand Gulf to adopt the "conditions and limitations" of NEI 94-01, Revision 2, SE Section 4.1, as part of the implementation documents listed in TS 5.5.12.

3.4 Risk Insights

The licensee stated that the proposed amendment is risk-informed and follows the guidance in RG 1.174, Revision 3 and RG 1.200, Revision 2. The licensee also stated that by letter dated February 19, 2020, Entergy submitted a LAR to allow a permanent extension of the Type A ILRT interval to once every 15 years and as part of the permanent extension LAR, Entergy performed a Grand Gulf-specific evaluation to assess the risk impact of a 15-year permanent ILRT extension. The risk assessment that was performed for the permanent 15-year extension is directly applicable and bounds the proposed one-cycle change to 13.5 years. As such, the description of the plant-specific risk assessment provided in the LAR (i.e., methodology, PRA technical adequacy, and summary of plant-specific risk assessment results) refers to a 15-year extension.

Section 9.2.3.1, "General Requirements for ILRT Interval Extensions beyond Ten Years," of NEI 94-01, Revision 3-A, discusses how plant-specific confirmatory analyses are required when extending the Type A ILRT interval beyond 10 years. Section 9.2.3.4, "Plant-Specific Confirmatory Analyses," of NEI 94-01, Revision 3-A states, in part, that "The assessment should be performed using the approach and methodology described in EPRI Report No. 1018243, "Risk Impact Assessment of Extended Integrated Leak Rate Testing Intervals." The analysis is to be performed by the licensee and retained in the plant documentation and records as part of the basis for extending the ILRT interval."

In the SER, dated June 25, 2008, the NRC staff found the methodology in NEI 94-01, Revision 2, and EPRI TR-1009325, Revision 2, acceptable for referencing by licensees proposing to amend their TS to permanently extend the ILRT interval to 15 years, provided certain conditions are satisfied. These conditions, set forth in Section 4.2 of the SER for EPRI TR-1009325, Revision 2, stipulate that:

1. The licensee submits documentation indicating that the technical adequacy of its PRA is consistent with the requirements of RG 1.200, relevant to the ILRT extension application. Additional application specific guidance on the technical adequacy of a PRA used to extend ILRT intervals is provided in Section 3.2.4 of the SER for EPRI TR-1009325, Revision 2.
2. The licensee submits documentation indicating that the estimated risk increase associated with permanently extending the ILRT surveillance interval to 15 years is small and consistent with the clarification provided in Section 3.2.4.6 of the SER for EPRI TR-1009325, Revision 2.
3. The methodology in EPRI TR-1009325, Revision 2, is acceptable provided the average leak rate for the pre-existing containment large leak accident case (i.e., accident case 3b) used by licensees is assigned a value of 100 times the L_a instead of 35 L_a .
4. A LAR is required in instances where containment over-pressure is relied upon for ECCS performance. According to the clarification provided in Section 3.2.4.6 of the NRC SER for NEI 94-01, Revision 2, and EPRI TR-1009325, Revision 2, plants that rely on containment over-pressure (or containment accident pressure) net positive suction head for ECCS injection must also consider core damage frequency (CDF) in the ILRT evaluation.

3.4.1 Plant Specific Risk Evaluation

In Section 3.4 of the enclosure to the LAR, "Plant Specific Risk Assessment," the licensee stated that the plant specific risk assessment for Grand Gulf follows the guidance in:

- NEI 94-01, Revision 3-A,
- The methodology used in EPRI TR-104285, "Risk Impact Assessment of Revised Containment Leak Rate Testing Intervals,"
- The NEI "Interim Guidance for Performing Risk Impact Assessments in Support of One-Time Extensions for Containment Integrated Leakage Rate Test Surveillance Intervals," from November 2001,
- The NRC regulatory guidance on the use of PRA as stated in RG 1.200 as applied to ILRT interval extensions, risk insights in support of a request for a plant's licensing basis as outlined in RG 1.174,
- 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, and
- The methodology used in EPRI TR-1018243, Revision 2-A of EPRI TR 1009325.

The licensee addressed each of the four conditions for the use of EPRI TR-1009325, Revision 2, which are listed in Section 4.2 of the June 25, 2008, NRC SER for NEI 94-01, Revision 2. A summary of how each condition is met is provided in Sections 3.4.1.1 thru 3.4.1.4 below.

3.4.1.1 PRA Quality – Condition 1

The first condition in Section 4.2 of the SER for EPRI TR-1009325, Revision 2 stipulates that the licensee submits documentation indicating that the technical adequacy of its PRA is consistent with the requirements of RG 1.200 relevant to the ILRT extension application. This RG describes one acceptable approach for determining whether the technical adequacy of the PRA, in total or the parts that are used to support an application, is sufficient to provide confidence in the results, such that the PRA can be used in regulatory decisionmaking for light-water reactors.

Consistent with the information provided in RIS 2007-06, "Regulatory Guide 1.200 Implementation," March 22, 2007 (ADAMS Accession No. ML070650428), the NRC staff will use Revision 2 of RG 1.200 to assess technical adequacy of the PRA used to support risk-informed applications received after March 2010. In Section 3.2.4.1 of the SER for NEI 94-01, Revision 2 and EPRI TR-1009325, Revision 2, the NRC staff states that Capability Category (CC) I of the ASME PRA standard shall be applied as the standard for assessing PRA quality for ILRT extension applications, since approximate values of CDF and large early release frequency (LERF) and their distribution among release categories are sufficient to support the evaluation of changes to ILRT frequencies.

The licensee addresses the Grand Gulf PRA technical adequacy in Section 3.4.2 and Attachment 3, "Grand Gulf Nuclear Station: Evaluation of Risk Significance of Permanent IRLT Extension," Appendix A, "PRA Technical Adequacy," of the LAR. As discussed in Appendix A to Attachment 3 of the LAR, the Grand Gulf risk assessment performed to support the IRLT application utilized the current Grand Gulf PRA model of record, which is Revision 4b. This model and its technical contents were constructed and documented to meet the ASME/ANS PRA standard. The Grand Gulf PRA model Revision 4b meets the ASME/ANS PRA standard CC II of the supporting requirements. The licensee stated that its approach for maintaining, updating and documenting the PRA Models is controlled by procedures consistent with the guidance of the ASME/ANS PRA Standard.

The licensee stated that the Grand Gulf PRA model has undergone several peer reviews. A full-scope industry peer review of the Grand Gulf PRA model Revision 4 was conducted by the BWR Owners Group in September 2015. This peer review documented 66 new facts and observations (F&Os) including 39 findings, 26 suggestions, and 1 best practice. The Grand Gulf PRA internal events model Revision 4a was approved in October 2017 and incorporated changes, as applicable, to support the resolutions of the 2015 peer review findings. All finding-level F&Os from the 2015 full-scope industry PRA peer review have been closed by an independent assessment conducted in August 2017. In Attachment 3 to the LAR, the licensee provided Table A-1, which includes the resolutions and conclusions of the F&Os. Table A-1 also documents the basis for each F&O to validate whether the F&O constituted a PRA upgrade, maintenance update, or other; and documents the results from the independent assessment team review of the supporting requirements to ensure that CC II of the ASME PRA standard was met for the F&Os.

Grand Gulf does not currently have a fire PRA model. The results of the fire risk assessment performed for the Individual Plant Examination of External Events (IPEEE) are used for this analysis. The Grand Gulf IPEEE calculated a fire CDF of $2.74E-5$. Since no LERF value is directly provided, the fire LERF is estimated as 10 percent of the fire CDF to obtain a fire LERF of $2.74E-6$. The fire LERF can also be estimated using the ratio of the internal events LERF to the CDF; however, for Grand Gulf this ratio is 30 percent, which is unusually high and using this to estimate, the fire LERF is overly conservative for the total LERF. In support of the 10 percent fire LERF to CDF ratio, the licensee provided ratios from other Mark III containment plants and the ratio from the Grand Gulf Severe Accident Mitigation Alternatives, which are provided in the LAR. The licensee stated that the LERF/CDF ratio is typically about 5 percent.

The seismic PRA results from the IPEEE seismic margins analysis do not result in an estimate of CDF. The 2014 seismic reevaluations for operating reactor sites, NEI "Seismic Risk Evaluations for Plants in the Central and Eastern United States" (ADAMS Accession No. ML14083A596), confirm the 2010 Generic Issue (GI)-199, "Implications of Updated Probabilistic Seismic Hazard Estimates in Central and Eastern United States on Existing Plants" (ADAMS Accession Nos. ML100270582 and ML100270639), conclusions remain valid for estimating seismic CDF at plants in the Central and Eastern United States, which includes Grand Gulf. The average of the seismic CDF values reported in Table D-1 of GI-199 is calculated to be $8.38E-6$. Similar to fire, the seismic LERF is estimated by applying a 10 percent LERF/CDF ratio, yielding an estimated seismic LERF of $8.38E-7$.

Based on review of the above information, the NRC staff finds that the licensee has addressed the relevant findings and gaps from the peer reviews and that they have no impact on the results of this LAR. Therefore, the NRC staff concludes that the internal events PRA model

used by the licensee is of sufficient quality to support the evaluation of changes to ILRT frequencies. Accordingly, the first condition is satisfied.

3.4.1.2 Estimated Risk Increase – Condition 2

The second condition stipulates that the licensee submits documentation indicating that the estimated risk increase associated with permanently extending the ILRT interval to 15 years is small, consistent with the guidance in RG 1.174 and the clarification provided in Section 4.2 of the NRC SER for NEI 94-01, Revision 2, and EPRI TR-1009325, Revision 2. Specifically, a small increase in population dose should be defined as an increase in population dose of less than or equal to either 1.0 person-rem (roentgen equivalent man) per year or 1 percent of the total population dose, whichever is less restrictive. In addition, a small increase in conditional containment failure probability (CCFP) should be defined as a value marginally greater than that accepted in previous one-time 15-year ILRT extension requests. This would require that the increase in CCFP be less than or equal to 1.5 percentage points.

The licensee reported the results of the plant-specific risk assessment in Section 5.2 and the sensitivity calculations in Section 5.3 of Attachment 3 to the LAR. The reported risk impacts are based on a change in the containment ILRT frequency from three tests in 10 years (the test frequency under 10 CFR 50 Appendix J, Option A) to one test in 15 years and account for the risk from undetected containment leaks due to steel liner corrosion. The following conclusions can be drawn from the licensee's analysis associated with extending the containment ILRT frequency:

1. RG 1.174 defines very small changes in risk as resulting in increases of CDF less than $1.0E-06$ /year and increases in LERF less than $1.0E-07$ /year. The licensee stated that since the ILRT does not impact CDF, the relevant criterion is LERF. The increase in internal events LERF resulting from a change in the containment ILRT test interval from 3-in-10 years to 1-in-15 years is estimated as $1.66E-8$ /year using the EPRI guidance. This value increases negligibly if the risk impact of corrosion-induced leakage of the steel liners occurring and going undetected during the extended test interval is included. As such, the estimated change in LERF is determined to be "very small" using the acceptance guidelines of RG 1.174.

When external event risk is included, the increase in LERF resulting from a change in the containment ILRT test interval from 3-in-10 years to 1-in-15 years is estimated as $3.12E-7$ /year using the EPRI guidance, and total LERF is $4.66E-6$ /year. As such, the estimated change in LERF is determined to be "small" using the acceptance guidelines of RG 1.174. The risk change resulting from a change in the containment ILRT test interval from 3-in-10 years to 1-in-15 years bounds the 1-in-10 years to 1-in-15 years risk change. When external event risk is included, the increase in LERF resulting from a change in the containment ILRT test interval from 1-in-10 years to 1-in-15 years is estimated as $1.30E-7$ and the total LERF is $4.48E-6$. Therefore, the risk increase is "small" using the acceptance guidelines of RG 1.174.

2. The effect resulting from changing the Type A test frequency to 1-per-15 years, measured as an increase to the total integrated plant risk for those accident sequences influenced by Type A testing, is 0.006 person-rem/year. NEI 94-01 states that a "small" population dose is defined as an increase of ≤ 1.0 person-rem/year, or ≤ 1 percent of the total population dose, whichever is less restrictive for the risk impact assessment of the extended ILRT intervals. The reported increase in total

population dose is below the acceptance criteria provided in EPRI TR-1009325, Revision 2-A, and defined in Section 3.2.4.6 of the NRC SER for NEI 94-01, Revision 2. Thus, the increase in the total integrated plant risk for the proposed change is considered small and supportive of the proposed change.”

3. The increase in the conditional containment failure probability from the 3-in-10-year interval to 1-in-15-year interval is 0.642 percent. NEI 94-01, Revision 2-A states that increases in CCFP of ≤ 1.5 percent are “small.” This value is below the acceptance guidelines in Section 3.2.4.6 of the NRC SER for NEI 94-01, Revision 2, and supportive of the proposed change.

Based on the risk assessment results, the NRC staff concludes that the increase in LERF is small and consistent with the acceptance guidelines of RG 1.174, and the increase in the total population dose and the magnitude of the change in the CCFP for the proposed change are small. Accordingly, the second condition is met.

3.4.1.3 Leak Rate for the Large Preexisting Containment Leak Rate Case – Condition 3

The third condition stipulates that to make the methodology in EPRI TR-1009325, Revision 2 acceptable, the average leak rate for the preexisting containment large leak rate accident case (i.e., accident case 3b) used by the licensees shall be 100 L_a instead of 35 L_a . The licensee stated that the representative containment leakage for Class 3b sequences is 100 L_a based on the guidance provided in EPRI TR. 1009325, Revision 2-A (EPRI TR-1018243). Accordingly, the third condition is met.

3.4.1.4 Containment Overpressure is Relied Upon for ECCS Performance – Condition 4

The fourth condition stipulates that in instances where containment over-pressure is relied upon for ECCS performance, a LAR is required to be submitted. In Section 3.2 of the enclosure to the LAR, the licensee stated that no credit is taken for the increase in containment pressure due to an accident (containment over pressurization). Thus, no reliance is placed on pressure and/or temperature transients to ensure adequate net-positive suction head. Accordingly, the fourth condition is not applicable.

3.4.2 Drywell Bypass Leak Rate Test Assessment

The licensee performed a risk analysis on a one-time extension of the DWBT interval to 15 years in its LAR dated May 12, 2003, which was evaluated in the NRC staff's SE for Amendment No. 164 dated January 28, 2004. The NRC staff's SE concluded that increasing the DWBT intervals to 15 years results in only a small change in LERF and is consistent with the acceptance guidelines in RG 1.174. The NRC has determined that the analysis from the 2004 SE applies here because this LAR is not factually distinguishable from that LAR in a way that would affect the analysis. Since there is only a small change in LERF for the ILRT and DWBT, they share test equipment and system lineups, and both meet the acceptance guidelines in RG 1.174, the NRC staff finds that the extension of both tests concurrently is reasonable.

3.5 Technical Evaluation Summary

Based on its review, the NRC staff finds that the Grand Gulf containment structural deteriorations and aging degradations are being satisfactorily monitored and managed. The NRC staff finds that

there is reasonable assurance that the containment structural and leak-tight integrity will continue to be maintained during the requested one-cycle extension period until the next Type A test can be performed in the spring 2022 (RFO 23).

Consideration was also given to the December 29, 2017, NRC approval of the licensee's request for a one-cycle extension of the Appendix J containment ILRT, and the satisfactory implementation of the CISI (IWE/IWL) and Containment Leak Rate AMPs related to the NRC's 2016 approval of the Grand Gulf license renewal application. These AMPs, reviewed by the NRC staff, were determined to be adequate to ensure that the effects of aging would be managed consistent with the combined licensing basis for the period of extended operation. Therefore, the NRC staff finds it acceptable to approve the TS change proposed by Entergy to allow a one-cycle extension of the current 11.5-year containment ILRT and DWBT intervals to 13.5 years.

In addition, the NRC staff finds that the margins shown in the past DWBTs, continued licensee assessments of the drywell bypass leakage during quarterly tests of the drywell purge compressors, and an effective implementation of the ISI program will support a 2 year extension to the next DWBT.

Other than stating the exceptions to the next Type A and DWBT intervals, the proposed changes will have no other impact on SR 3.6.5.1.1 and TS 5.5.12. The TSs will continue to meet the requirements of 10 CFR 50.36(c)(3) and 10 CFR 50.36(c)(5). Therefore, the NRC staff finds that the proposed changes are acceptable. This is a one-time interval extension and subsequent Type A and DWBT must be conducted within the normal prescribed intervals, unless NRC approval is obtained for future extensions.

4.0 EXIGENT CIRCUMSTANCES

4.1 Background

The NRC's regulations contain provisions for issuance of amendments when the usual 30-day public comment period cannot be met. These provisions are applicable under exigent circumstances. Consistent with the requirements in 10 CFR 50.91(a)(6), exigent circumstances exist when: (1) a licensee and the NRC must act quickly; (2) time does not permit the NRC to publish a *Federal Register* notice allowing 30 days for prior public comment; and (3) the NRC determines that the amendment involves no significant hazards consideration. As discussed in the licensee's application dated March 31, 2020, the licensee requested that the proposed amendment be processed by the NRC on an exigent basis.

Under the provisions in 10 CFR 50.91(a)(6), the NRC notifies the public in one of two ways: (1) by issuing a *Federal Register* notice providing an opportunity for hearing and allowing at least 2 weeks from the date of the notice for prior public comments; or (2) by using local media to provide reasonable notice to the public in the area surrounding the licensee's facility. In this case, the NRC used local media and published a public notice in *The Vicksburg Post*, located in Vicksburg, Mississippi (www.vicksburgpost.com); a newspaper local to the licensee's facility, from April 7 to April 9, 2020.

4.2 The Licensee's Basis for Exigency

Grand Gulf is currently scheduled to perform a Type A ILRT and DWBT (i.e., SR 3.6.5.1.1), prior to entering Operational MODE 2 (startup). The MODE change is scheduled to occur in

mid-April. Based on a mid-April MODE change, the requested approval date of the proposed change to extend the ILRT and DWBT interval is less than the 30-day *Federal Register* public notice period specified in 10 CFR 50.91(a)(6), therefore Entergy classifies this request as exigent in accordance with the cited regulation. Consistent with the requirements of 10 CFR 50.91(a)(6), Entergy believes that the need to minimize exposure of essential and non-essential personnel to COVID-19, and expeditiously return Grand Gulf to service in support of the National Emergency Declaration could not have been avoided, and thus creates an exigent circumstance, based on the following:

- the unanticipated rapid COVID-19 infection rate and level of disability caused by the disease;
- the unprecedented rapid and fluid government response, including actual and potential quarantine orders;
- the need to protect critical staff by removal and relocation of unnecessary and nonessential individuals from the Grand Gulf site;
- limited protective measures available at Grand Gulf to prevent disease transmission; and
- the need to expeditiously return Grand Gulf to service to support the national electrical grid critical infrastructure.

4.3 NRC Staff Conclusion

Based on the above circumstances, the NRC staff finds that the licensee made a timely application for the proposed amendment following identification of the issue. In addition, the NRC staff finds that exigent circumstances exist in that both the licensee and the NRC must act quickly because if they do not, COVID-19 and measures taken in response to COVID-19 will have a significant impact to the outage schedule. Based on these findings, and the determination that the amendment involves no significant hazards consideration as discussed in Section 6.0 below, the NRC staff has determined that a valid need exists for issuance of the license amendment using the exigent provisions of 10 CFR 50.91(a)(6).

5.0 PUBLIC COMMENTS

Under the provisions in 10 CFR 50.91(a)(6), the NRC used local media and published a public notice in *The Vicksburg Post*, located in Vicksburg, Mississippi (www.vicksburgpost.com); a newspaper local to the licensee's facility, from April 7 to April 9, 2020. The notice included the NRC staff's proposed no significant hazards consideration determination. The notice also provided an opportunity for public comment until April 14, 2020. regarding the staff's proposed no significant hazards consideration determination.

No public comments were received regarding the proposed amendment.

6.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The NRC's regulation in 10 CFR 50.92(c) states that the NRC may make a final determination, under the procedures in 10 CFR 50.91, that a license amendment involves no significant hazards consideration if operation of the facility, in accordance with the amendment, would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

As required by 10 CFR 50.91(a), in its application dated March 31, 2020, the licensee provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed amendment to the Technical Specifications (TS) involves a one-cycle extension of the Grand Gulf Nuclear Station, Unit 1 (GGNS) Type A integrated leakage rate test (ILRT) and the drywell bypass leakage rate test (DWBT) intervals to 13.5 years.

The proposed extensions do not involve either a physical change to the plant or a change in the manner in which the plant is operated or controlled. The 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 Containment and the testing requirements invoked to periodically demonstrate the integrity of the 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 change in Type A test frequency 13.5 years, measured as an increase to the total integrated plant risk for those accident sequences influenced by Type A testing, based on the internal events (IE) probabilistic risk analysis (PRA) is less than 0.006 person-rem/year for GGNS. Electric Power Research Institute (EPRI) Report No. 1009325, Revision 2-A states that a very small population is defined as an increase of ≤ 1.0 person-rem per year or $\leq 1\%$ of the total population dose, whichever is less restrictive for the risk impact assessment of the extended ILRT intervals. This is consistent with the Nuclear Regulatory Commission (NRC) Final Safety Evaluation for Nuclear Energy Institute (NEI) 94-01 and EPRI Report No. 1009325. Moreover, the risk impact when compared to other severe accident risks is negligible. Therefore, this proposed extension does not involve a significant increase in the probability of an accident previously evaluated.

In addition, as documented in NUREG-1493, "Performance-Based Containment Leak-Test Program," dated September 1995, Types B and C tests have identified a very large percentage of containment leakage paths, and the percentage of containment leakage paths that are detected only by Type A testing is very small. The GGNS Type A test history supports this conclusion.

The integrity of the Containment is subject to two types of failure mechanisms that 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. The local leakage rate test (LLRT) requirements and

administrative controls such as configuration management 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 Containment, combined with the Containment inspections performed in accordance with the American Society of Mechanical Engineers (ASME) Section XI, and TS requirements serve to provide a high degree of assurance that the Containment would not degrade in a manner that is detectable only by a Type A test. Based on the above, the proposed Type A test interval extension does not significantly increase the consequences of an accident previously evaluated.

Therefore, the proposed change does not result in a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed amendment to the Grand Gulf TS involves a one-cycle extension of the Type A ILRT and the DWBT intervals to 13.5 years. The Containment and the testing requirements to periodically demonstrate the integrity of the Containment exist to ensure the plant's ability to mitigate the consequences of an accident do not involve any accident precursors or initiators. The proposed change does not involve a physical change to the plant (i.e., no new or different type of equipment will be installed) or a change to the manner in which the plant is operated or controlled.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed amendment to the Grand Gulf TS involves a one-cycle extension of the Type A ILRT and the DWBT intervals to 13.5 years. This amendment does not alter the manner in which safety limits, limiting safety system set points, or limiting conditions for operation are determined. The specific requirements and conditions of the TS 10 CFR 50, Appendix J Testing Program for Containment leakage rate testing exist to ensure that the degree of Containment structural integrity and leak-tightness that is considered in the plant safety analysis are maintained. The overall containment leak rate limit specified by TS is maintained.

The design, operation, testing methods, and acceptance criteria for Types A, B, and C Containment leakage tests specified in applicable Codes and Standards would continue to be met with the acceptance of this proposed

change, since these are not affected by the proposed changes to the Type A test interval.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

The NRC staff reviewed the licensee's no significant hazards consideration analysis. Based on the review and on the NRC staff's evaluation of the underlying license amendment request as discussed above, the NRC staff concludes that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff has made a final determination that no significant hazards consideration is involved for the proposed amendment and that the amendment should be issued as allowed by the criteria contained in 10 CFR 50.91.

7.0 STATE CONSULTATION

In accordance with the Commission's regulations, the relevant Mississippi State official was notified of the proposed issuance of the amendment on April 6, 2020. The State official had a minor health-related comment, and this was resolved on April 6, 2020.

8.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes a surveillance requirement. The NRC staff has determined that the amendment involves 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, which was published in *The Vicksburg Post, Vicksburg, Mississippi*, on April 7-9, 2020, that the amendment involves no significant hazards consideration, and there has been no public comment on such finding. 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 amendment.

9.0 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: April 15, 2020

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 – ISSUANCE OF AMENDMENT NO. 224 RE: ONE CYCLE EXTENSION OF APPENDIX J INTEGRATED LEAKAGE TEST AND DRYWELL BYPASS TEST INTERVAL (**EXIGENT CIRCUMSTANCES**) (EPID L-2020-LLA-0060) DATED APRIL 15, 2020

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