



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

January 22, 2018

Mr. J. J. Hutto  
Regulatory Affairs Director  
Southern Nuclear Operating Company, Inc.  
P. O. Box 1295, Bin B038  
Birmingham, AL 35201-1295

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 – ISSUANCE OF  
AMENDMENTS TO REVISE TS 3.6.4.1, "SECONDARY CONTAINMENT"  
(CAC NOS. MF9590 AND MF9591; EPID L-2017-LLA-0216)

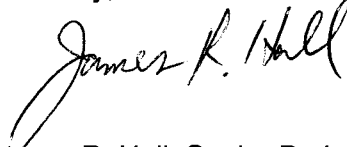
Dear Mr. Hutto:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 289 to Renewed Facility Operating License No. DPR-57 and Amendment No. 234 to Renewed Facility Operating License No. NPF-5 for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP), respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated April 7, 2017.

The amendments revise the requirements of TS 3.6.4.1, "Secondary Containment," associated with Surveillance Requirement (SR) 3.6.4.1.2. Specifically, SR 3.6.4.1.2 verifies that one secondary containment access door in each access opening is closed. The amendments would allow for brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit conditions.

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

Sincerely,

A handwritten signature in black ink, reading "James R. Hall". The signature is written in a cursive style with a large, stylized "J" and "H".

James R. Hall, Senior Project Manager  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-321 and 50-366

Enclosures:

1. Amendment No. 289 to DPR-57
2. Amendment No. 234 to NPF-5
3. Safety Evaluation

cc: Listserv



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

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-321

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 289  
Renewed License No. DPR-57

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit No. 1 (the facility) Renewed Facility Operating License No. DPR-57 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated April 7, 2017, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

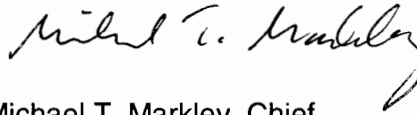
2. Accordingly, the license is hereby amended by page changes as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-57 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B), as revised through Amendment No. 289, are hereby incorporated in the renewed license. Southern Nuclear 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 within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to Renewed Facility  
Operating License No. DPR-57  
and Technical Specifications

Date of Issuance: January 22, 2018

ATTACHMENT TO LICENSE AMENDMENT NO. 289

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 1

RENEWED FACILITY OPERATING LICENSE NO. DPR-57

DOCKET NO. 50-321

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

Remove Pages

License

4

TSs

3.6-35

Insert Pages

License

4

TSs

3.6-35

for sample analysis or instrumentation calibration, or associated with radioactive apparatus or components;

- (6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 of Part 50, and Section 70.32 of Part 70; all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and the additional conditions specified or incorporated below:

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at steady state reactor core power levels not in excess of 2804 megawatts thermal.

(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B), as revised through Amendment No. 289, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

The Surveillance Requirement (SR) contained in the Technical Specifications and listed below, is not required to be performed immediately upon implementation of Amendment No. 195. The SR listed below shall be successfully demonstrated before the time and condition specified:

SR 3.8.1.18 shall be successfully demonstrated at its next regularly scheduled performance.

(3) Fire Protection

Southern Nuclear shall implement and maintain in effect all provisions of the fire protection program, which is referenced in the Updated Final Safety Analysis Report for the facility, as contained in the updated Fire Hazards Analysis and Fire Protection Program for the Edwin I. Hatch Nuclear Plant, Units 1 and 2, which was originally submitted by letter dated July 22, 1986. Southern Nuclear may make changes to the fire protection program without prior Commission approval only if the changes

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry and exit.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	<p>-----NOTE-----</p> <p>The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.</p> <p>-----</p> <p>Verify secondary containment can be drawn down to <math>\geq 0.20</math> inch of vacuum water gauge in <math>\leq 10</math> minutes using required standby gas treatment (SGT) subsystem(s).</p>	In accordance with the Surveillance Frequency Control Program

(continued)



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SOUTHERN NUCLEAR OPERATING COMPANY, INC.

GEORGIA POWER COMPANY

OGLETHORPE POWER CORPORATION

MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA

CITY OF DALTON, GEORGIA

DOCKET NO. 50-366

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 234  
Renewed License No. NPF-5

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Edwin I. Hatch Nuclear Plant, Unit No. 2 (the facility) Renewed Facility Operating License No. NPF-5 filed by Southern Nuclear Operating Company, Inc. (the licensee), acting for itself, Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia, and City of Dalton, Georgia (the owners), dated April 7, 2017, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations as set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.



2. Accordingly, the license is hereby amended by page changes as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-5 is hereby amended to read as follows:

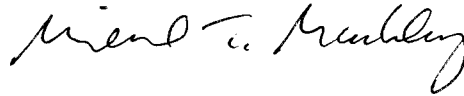
(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B), as revised through Amendment No. 234 are hereby incorporated in the renewed license.

Southern Nuclear 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 within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Michael T. Markley, Chief  
Plant Licensing Branch II-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to Renewed Facility  
Operating License No. NPF-5  
and Technical Specifications

Date of Issuance: January 22, 2018

ATTACHMENT TO LICENSE AMENDMENT NO. 234

EDWIN I. HATCH NUCLEAR PLANT, UNIT NO. 2

RENEWED FACILITY OPERATING LICENSE NO. NPF-5

DOCKET NO. 50-366

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

Remove Pages

License

4

TSs

3.6-34

Insert Pages

License

4

TSs

3.6-34

- (6) Southern Nuclear, pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed license shall be deemed to contain, and is subject to, the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 of Part 50, and Section 70.32 of Part 70; all applicable provisions of the Act and the rules, regulations, and orders of the Commission now or hereafter in effect; and the additional conditions<sup>2</sup> specified or incorporated below:

(1) Maximum Power Level

Southern Nuclear is authorized to operate the facility at steady state reactor core power levels not in excess of 2,804 megawatts thermal, in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B), as revised through Amendment No. 234, are hereby incorporated in the renewed license. Southern Nuclear shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the issuance of the renewed license or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the license supported by a favorable evaluation by the Commission.

(a) Fire Protection

Southern Nuclear shall implement and maintain in effect all provisions of the fire protection program, which is referenced in the Updated Final Safety Analysis Report for the facility, as contained

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<sup>2</sup> The original licensee authorized to possess, use, and operate the facility with Georgia Power Company (GPC). Consequently, certain historical references to GPC remain in certain license conditions.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Suspend CORE ALTERATIONS.	Immediately
	<u>AND</u>	
	C.3 Initiate action to suspend OPDRVs.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.4.1.1	Verify all secondary containment equipment hatches are closed and sealed.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.2	Verify one secondary containment access door in each access opening is closed, except when the access opening is being used for entry and exit.	In accordance with the Surveillance Frequency Control Program
SR 3.6.4.1.3	<p>-----NOTE-----</p> <p>The number of standby gas treatment (SGT) subsystem(s) required for this Surveillance is dependent on the secondary containment configuration, and shall be one less than the number required to meet LCO 3.6.4.3, "Standby Gas Treatment (SGT) System," for the given configuration.</p> <p>-----</p> <p>Verify secondary containment can be drawn down to <math>\geq 0.20</math> inch of vacuum water gauge in <math>\leq 10</math> minutes using required standby gas treatment (SGT) subsystem(s).</p>	In accordance with the Surveillance Frequency Control Program

(continued)



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WASHINGTON, D. C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO  
AMENDMENT NO. 289 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-57  
AND  
AMENDMENT NO. 234 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-5  
SOUTHERN NUCLEAR OPERATING COMPANY, INC.  
EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2  
DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By application dated April 7, 2017, (Agencywide Documents Access and Management System (ADAMS) Accession No. ML17097A322), Southern Nuclear Operating Company, Inc. (SNC, the licensee), requested changes to the Technical Specifications (TSs) for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP). The proposed changes in this license amendment request (LAR) would revise the requirements of TS 3.6.4.1, "Secondary Containment," associated with Surveillance Requirement (SR) 3.6.4.1.2. Specifically, SR 3.6.4.1.2 verifies that one secondary containment access door in each access opening is closed. The amendments would allow for brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit conditions.

2.0 REGULATORY EVALUATION

The following U.S. Nuclear Regulatory Commission (NRC) requirements and guidance documents are applicable to the NRC staff's review of the LAR:

- Title 10 to the *Code of Federal Regulations* (10 CFR) 50.36, "Technical specifications", establishes the regulatory requirements related to the contents of the TSs. Pursuant to 10 CFR 50.36, TSs are required to include items in the following specific categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs [Limiting Condition for Operation]; (3) SRs; (4) design features; and (5) administrative controls. The regulation does not specify the particular requirements to be included in a plant's TSs.

Section 50.36(c)(2) of 10 CFR Part 50 specifies, in part, that LCOs are the lowest functional capability or performance level of equipment required for safe

operation of the facility. When an LCO is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSS until the LCO can be met.

Section 10 CFR 50.36(c)(3) of 10 CFR Part 50 requires that TSS include SRs, which are requirements relating to test, calibration, or inspection, to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met.

- Title 10 to the *Code of Federal Regulations* (10 CFR) 50.72(b)(3)(v), "Immediate notification requirements for operating nuclear power reactors," and 10 CFR 50.73(a)(2)(v), "Licensee event report system," establishes the reporting criteria for any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to; (A) Shut down the reactor and maintain it in a safe shutdown condition; (B) remove residual heat; (C) control the release of radioactive material; or (D) mitigate the consequences of an accident.
- The regulations in 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants" (herein after referenced to as GDC) establish the minimum requirements for the principal design criteria of water-cooled nuclear power plants. The principal design criteria establish the necessary design, fabrication, construction, testing, and performance requirements for structures, systems, and components important to safety.

HNP Unit 1 is licensed to the 1967 version of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plant Construction Permits" (ADAMS Accession No. ML043310029). Appendix F of the HNP Unit 1 Final Safety Analysis Report (FSAR) describes the relevant licensing bases for Unit 1, and discusses the differences between the Unit 1 licensing bases and the specific GDC cited below. HNP Unit 2 is licensed to 10 CFR Part 50, Appendix A, and the NRC staff identified the following GDC as applicable to the LAR for Unit 2:

GDC 16, "Containment design," requires, in part, that the containment establish an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

GDC 19, "Control room," requires, in part, that adequate radiation protection be provided to permit access and occupancy of the control room under accident conditions, without personnel receiving radiation exposures in excess of 5 roentgen equivalent man (rem) whole body, or its equivalent to any part of the body, for the duration of the accident.

- 10 CFR 50.67, "Accident source term," section (b)(2), states, in part, that:
  - (i) An individual located at any point on the boundary of the exclusion area for any 2-hour period following the onset of the postulated fission product release, would not receive a radiation dose in excess of 0.25 Sv (25 rem) total effective dose equivalent (TEDE).

- (ii) An individual located at any point on the outer boundary of the low population zone, who is exposed to the radioactive cloud resulting from the postulated fission product release (during the entire period of its passage), would not receive a radiation dose in excess of 0.25 Sv (25 rem) TEDE.
  - (iii) Adequate radiation protection is provided to permit access to and occupancy of the control room under accident conditions without personnel receiving radiation exposures in excess of 0.05 Sv (5 rem) TEDE for the duration of the accident.
- Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," Revision 0, July 2000 (ADAMS Accession No. ML003716792), provides the methodology for analyzing the radiological consequences of several design basis accidents (DBAs) to demonstrate compliance with 10 CFR 50.67 and GDC-19. RG 1.183 provides guidance to licensees on acceptable application of alternate source term (AST) submittals, including acceptable radiological analysis assumptions and accident specific guideline values for use in conjunction with the accepted AST.
- NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition," (SRP) Section 15.0.1, "Radiological Consequence Analyses Using Alternative Source Terms," Revision 0, July 2000 (ADAMS Accession No. ML070710376), provides guidance to the NRC staff for the review of AST amendment requests. SRP 15.0.1 states that the NRC reviewer should evaluate the proposed change against the guidance in RG 1.183.
- NUREG-1433, Revision 4, "Standard Technical Specifications, General Electric BWR [Boiling Water Reactor]/4 Plants" (ADAMS Accession No. ML12104A192), and NUREG-1434, Revision 4, "Standard Technical Specifications, General Electric BWR/6 Plants" (ADAMS Accession No. ML12104A195) provide guidance on the TS format. The STS for BWR/6 contains an exception that allows both doors in a secondary containment access opening to be open simultaneously for normal entry and exit.
- NUREG-1022, Rev. 3 "Event Reporting Guidelines: 10 CFR 50.72 and 50.73 (Final Report)," Section 3.2.7, discusses the reporting criteria in 10 CFR 50.72(b)(3)(v) and 10 CFR 50.73(a)(2)(v), which relate to events or conditions that could have prevented fulfillment of a safety function. This section states, in part, that there are a limited number of single-train systems that perform a safety function. For such systems, inoperability of a single train is reportable, even though the plant TSs may allow such a condition to exist for a limited time. This issue, as it relates to reportability for momentary inoperability of secondary containment, is discussed in NRC letter to Exelon dated January 8, 2015 (ADAMS Accession No. ML14323A682).
- The NRC staff also considered relevant information in the HNP Updated Final Safety Analysis Report (UFSAR), which describes the DBAs and evaluation of their radiological consequences.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Background

The secondary containment is a structure that completely encloses the primary containment, including components that may contain primary system fluid. The secondary containment serves as the containment during reactor refueling and maintenance operations and as an additional barrier when the primary containment is functional. The safety function of the secondary containment is to contain airborne radioactivity that may leak from primary containment following a DBA, such that the standby gas treatment system (SGTS) can collect and filter secondary containment atmosphere before release to the environment. This ensures that the radiation dose to the control room operators and to members of the public offsite are within the regulatory limits. There is no redundant train or system that can perform the secondary containment function should the secondary containment be inoperable.

The secondary containment boundary is the combination of walls, floor, roof, ducting, doors, hatches, penetrations and equipment that physically form the secondary containment. A typical secondary containment access opening contains at least one inner and one outer door in an airlock configuration. In some cases, secondary containment access openings are shared such that there are multiple inner or outer doors. All secondary containment access doors are normally kept closed, except when the access opening is being used for entry and exit of personnel, equipment or material.

#### 3.2 Proposed Change

Limiting Condition for Operation (LCO) 3.6.4.1 associated with TS 3.6.4.1, "Secondary Containment", requires that the secondary containment be operable in Modes 1, 2, and 3, during movement of irradiated fuel assemblies in the secondary containment, during core alterations, and during operations with a potential for draining the reactor vessel. Surveillance Requirements (SRs) 3.6.4.1.1 through SR 3.6.4.1.4 provide the requirements for demonstrating that the secondary containment is operable. In the case of SR 3.6.4.1.2, the surveillance requires verification that at least one secondary containment access door in each access opening is closed. The intent of this requirement is to prevent a breach of secondary containment at any time when the secondary containment is required to be operable.

The licensee is proposing to revise SR 3.6.4.1.2 as follows (proposed changes are shown in italics):

"Verify one secondary containment access door in each access opening is closed,  
*except when the access opening is being used for entry and exit.*"

The purpose of the proposed change is to provide an allowance for brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit conditions. The change would eliminate the need to declare the secondary containment inoperable, and the associated event notification required by 10 CFR 50.72 and 10 CFR 50.73.



### 3.3 NRC Staff Evaluation

The NRC staff evaluated the impact of the proposed change on the secondary containment functional requirements and the DBA. The NRC staff review was limited to the licensee's request to provide an allowance for the brief, inadvertent, simultaneous opening of redundant secondary containment access doors during normal entry and exit conditions. Planned activities that could result in the simultaneous opening of redundant secondary containment access openings, such as maintenance of a secondary containment personnel access door, or movement of large equipment through the openings that would take longer than the normal transit time, were considered outside the scope of the NRC staff's review of this LAR.

#### 3.3.1 Secondary Containment Safety Function

The safety function of the secondary containment is to contain airborne radioactivity that may leak from the primary containment following a DBA, such that the SGTS can collect and filter secondary containment atmosphere before release to the environment. This ensures that the control room operator and offsite doses are within the regulatory limits.

In conjunction with operation of the SGTS and closure of the secondary containment isolation valves and ventilation dampers, the secondary containment is designed to reduce the activity level of the fission products that bypass or leak from primary containment, or are released directly from the reactor coolant pressure boundary components located in secondary containment, prior to release to the environment. For the secondary containment to be considered operable, it must have adequate leak-tightness to ensure that the required vacuum can be established and maintained by the SGTS when it is in operation. The secondary containment and the SGTS together ensure airborne radioactive material is contained and processed.

The secondary containment at HNP consists of three zones; the Unit 1 Reactor Building (Zone I), the Unit 2 Reactor Building (Zone II), and the common refueling floor (Zone III). The secondary containment boundary required to be operable is dependent upon the operating status of both units, and the configuration of doors, hatches, refueling floor plug, secondary containment isolation valves, and available flow paths to the SGTS. Due to this configuration, the Limiting Condition for Operation associated with TS 3.6.4.3, "Secondary Gas Treatment (SGT) System," requires that the necessary complement of the four Unit 1 and Unit 2 SGT subsystems are operable to support LCO 3.6.4.1, "Secondary Containment."

The licensee explained in the LAR that it is possible for an unintentional simultaneous opening of both the inner and outer secondary containment access doors during normal entry and exit. Based on the current wording in SR 3.6.4.1.2, a simultaneous opening of both inner and outer doors in an access opening would require declaring the secondary containment inoperable. Furthermore, 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors," and 10 CFR 50.73, "Licensee event reporting system," require prompt notification and submittal of a LER, regardless of the length of time of inoperability. The licensee stated that in the vast majority of prior instances, the secondary containment was restored to operable status in much less than the 4 hour TS-required completion time. The licensee considers that declaring secondary containment inoperable for these brief occurrences is unwarranted, further stating that NUREG-1434, "Standard Technical Specifications General Electric BWR/6 plants," SR 3.6.4.1.3, contains an exception allowing both inner and outer

access doors to be open simultaneously for normal entry and exit. The proposed change to the HNP TSs would eliminate the need for the licensee to declare the secondary containment inoperable and to submit the required LERs for these instances.

The secondary containment is designed primarily as a conventional structure, therefore, to prevent ground level exfiltration of radioactive material during design basis accidents, support systems to maintain the secondary containment pressure at less than atmospheric pressure are necessary. There is no redundant train or system that can perform the secondary containment function should the secondary containment be inoperable. During normal operation, non-safety-related systems are used to maintain the secondary containment at a slight negative pressure. However, the LAR states that HNP TSs do not require the secondary containment to be maintained at a negative pressure with respect to the outside environment during normal operation. Following a design basis accident, the non-safety ventilation systems are automatically tripped and isolated, and the safety-related SGTS initiates and begins to draw down the secondary containment to a required vacuum within a prescribed time. The SGTS continues to maintain the vacuum condition for the duration assumed in the accident analysis.

The NRC staff concludes there is reasonable assurance that the proposed change will not challenge the safety function of the secondary containment.

### 3.3.2 Secondary Containment Drawdown Time

The LAR stated that the requirement for the SGTS at HNP Units 1 and 2 is to draw down secondary containment to a pressure of at least -0.20 inches of water (i.e.  $\geq 0.2$  inch of vacuum water gauge) in less than 10 minutes, as assumed in the loss of coolant accident (LOCA) analysis using the AST methodology. The capability of the SGTS to draw down the secondary containment to  $\geq 0.2$  inch of vacuum water gauge in  $\leq 10$  minutes is verified by HNP Unit 1 and Unit 2 TS 3.6.4.1, SR 3.6.4.1.3. The capability of the SGTS to maintain the secondary containment at  $\geq 0.2$  inch of vacuum water gauge is verified by SR 3.6.4.1.4.

During a LOCA, the accident analysis does not take credit for offsite power, and therefore, the time required to initiate the SGTS is taken into account. Section 6.2.3.1.10 of the HNP Unit 2 UFSAR states that in case of a loss of offsite power (LOSP), an additional 18 seconds is required for the emergency diesel generators to energize the SGTS and bring the system up to speed. When added to the normal time of 1.5 minutes to draw down secondary containment, the total time to achieve the necessary vacuum remains at less than two minutes. Therefore, in the highly unlikely event that a DBA would occur when both personnel doors are open during entry and exit, the brief time required to close one of the doors and initiate the SGTS would allow sufficient time for the system to reduce the post-accident secondary containment pressure to the required level well within the 10-minute period assumed in the HNP accident analysis.

The NRC staff concludes there is reasonable assurance that the proposed change will not challenge the drawdown time of the secondary containment.

### 3.3.3 Radiological Consequence Analysis

On September 30, 2016, the NRC staff approved, via License Amendment Nos. 280 and 224 (Accession No. ML16235A287), the latest radiological consequence analyses using the AST methodology for the HNP Units 1 and 2, respectively. These analyses are documented in the HNP Unit 2 UFSAR, Section 15, "Safety Analysis," which is common to both units. The NRC staff reviewed the impact of modifying the HNP TSs to allow the secondary containment access

openings to be open for only entry and exit, on all DBAs currently analyzed in the HPN UFSAR that could have the potential for significant dose consequences to ensure that: (1) the modification will not result in an increase in the radiation dose consequences; and, (2) any proposed increase in the radiation dose consequences will remain within the design criteria specified in 10 CFR 50.67 and the accident-specific design criteria outlined in RG 1.183. The NRC staff reviewed these DBAs and determined that the loss-of-coolant accident (LOCA) and fuel handling accident (FHA) take credit for secondary containment, and are possibly impacted by the brief, inadvertent, simultaneous opening of both an inner and outer access door during normal entry and exit conditions.

#### Design Basis Accident LOCA

The current licensing basis radiological consequence analysis for the DBA LOCA is presented in UFSAR Section 15.3.3, "Loss-of-Coolant Accident." The primary containment leakage pathway is modeled by the licensee as the leakage from the primary containment prior to the establishment of a sustained negative pressure in the reactor building at 10 minutes after the initiation of the DBA LOCA. This 10-minute time period is referred to as the secondary containment drawdown period. The initial onset of fission products released from the fuel rod gap to the reactor coolant system, referred to as the gap release, is not postulated to begin until 2 minutes after the initiation of the accident. Therefore, there is a possibility of fission products being released to the environment during the modeled time period between the two-minute gap release and the 10-minute reactor building drawdown time. In the DBA LOCA analysis, excluding two percent of the leakage that is released through bypass lines, all primary containment leakage is conservatively diluted in 50 percent of the reactor building volume and released directly to the environment at ground level. After secondary containment is assumed to be completely drawn down to negative pressure at 10 minutes after LOCA initiation, primary containment leakage into the secondary containment will be filtered by the SGTS in the secondary containment. The SGTS filters are credited with a 95 percent removal efficiency for all forms of iodine. Primary containment activity processed by the SGTS is assumed to be released through the main stack at the maximum TS flow rate of 4,000 cubic feet per minute (cfm) per unit. The licensee recognized that it is possible for the SGTS fans of both units to be in operation, taking suction from one unit; therefore, the licensee assumed a maximized combined release rate of 8,000 cfm from one reactor building. The licensee's model of this release path is consistent with RG 1.183. The analysis shows acceptable doses to the occupants of the main control room and the technical support center and to persons located at the exclusion area boundary (EAB) and the low population zone (LPZ).

Since the DBA LOCA analysis has sufficient conservatism by assuming a drawdown time of 10 minutes from the start of the DBA LOCA, margin exists to ensure that the secondary containment can be reestablished during brief, simultaneous opening of an inner and outer secondary containment access doors, and there is reasonable assurance that a failure of a safety system needed to control the release of radioactive material to the environment will not result. The brief, inadvertent, simultaneous opening of the secondary containment access doors does not impact the design bases and will not result in an increase in any on-site or off-site dose.

Based on the above, the NRC staff finds that the proposed change does not affect the current DBA LOCA radiological consequence analysis. Therefore, the NRC staff concludes that this change is acceptable with respect to the radiological consequences of the DBA LOCA.

### Fuel Handling Accident

The HNP licensing basis fuel handling accident (FHA) analysis is presented in UFSAR Section 15.3.5, "Fuel Handling Accident." The purpose of this analysis is to demonstrate that the engineered safety features designed to mitigate the radiological consequences of the FHA at HNP are adequate. The licensee's evaluation of the various conditions that can exist when the drywell head is off reveals that the greatest potential for the release of radioactive material occurs when the reactor pressure vessel head, dryers, and separators are also removed. In this configuration, radioactive material released as a result of fuel damage is available for transport directly to the refueling floor. As analyzed by the licensee, the postulated FHA involves a drop of a fuel assembly on top of other fuel assemblies in the reactor core during refueling operations. The licensee determined that the drop distance associated with this location bounds the maximum height that is allowed by the HNP refueling equipment configuration and is the limiting case because it results in the maximum release of fission products to the secondary containment. The licensee determined that the damage due to a fuel assembly drop over the core into the reactor vessel bounds that due to a drop in the spent fuel pool. The FHA analysis considers two cases:

- Case 1: A 10-minute drawdown time for the secondary containment. Prior to that time, the licensee assumed that airborne activity is released, unfiltered, and at ground level. After secondary containment drawdown, all of the airborne activity was assumed to be collected by the SGTS and released. The release is elevated and filtered at a 95 percent efficiency for particulates and all forms of iodine.
- Case 2: The licensee took no credit for secondary containment isolation or operation of the SGTS. The airborne activity was assumed to be released, unfiltered, and at ground level for the duration of the accident.

In License Amendment Nos. 256 and 200, dated August 28, 2008 (ADAMS Accession Number ML0817710075), the NRC staff found that both FHA cases were modeled conservatively, and the dose consequences for both cases were determined to meet the applicable acceptance criteria. The NRC staff reviewed the impact of the licensees' proposed addition of the phrase, "*except when the access opening is being used for entry and exit*," to SR 3.6.4.1.2. In the amendment request, the licensee did not propose any changes to the current licensing basis source term, inputs, assumptions, or methodology for the FHA. Case 2 results in higher offsite and onsite radiological doses than Case 1 and, therefore, will bound Case 1.

The proposed change to SR 3.6.4.1.2 has no impact on Case 2, or its resultant offsite and onsite radiological consequences, because the release is assumed to be unfiltered and at ground level. The NRC staff finds that assuming no SGTS operation would result in more severe consequences than assuming SGTS operation with any finite drawdown time. Therefore, the NRC staff concludes that Case 2 bounds Case 1, and that there is no need to reevaluate the radiological doses of the FHA.

The NRC staff notes that this safety evaluation approval applies to normal entry and exit through the secondary containment access openings for the time it takes to traverse through a door and that this safety evaluation does not approve or apply to maintenance being performed on an access opening with both doors open.

### 3.4 NRC Staff Technical Conclusion

The NRC staff reviewed the technical basis provided by the licensee to assess the operational and radiological impacts of the proposed changes to the surveillance requirements for secondary containment in the Hatch TSs. The NRC staff finds that the licensee's proposed changes are consistent with the regulatory requirements and guidance identified in Section 2.0 of this safety evaluation. The NRC staff concludes that there is reasonable assurance that the functional capability of the secondary containment will be maintained with proposed changes, and that the licensee's estimates of the dose consequences of a DBA LOCA and FHA comply with the requirements of 10 CFR 50.67 and the accident-specific dose guidelines specified in RG 1.183. Therefore, the NRC staff finds the proposed changes acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia State official was notified of the proposed issuance of the amendments on December 12, 2017. The NRC staff verified that the State official had no comments on December 12, 2017.

### 5.0 ENVIRONMENTAL CONSIDERATION

The amendments change requirements with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on August 29, 2017 (82 FR 41070). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

### 6.0 CONCLUSION

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

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SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2 – ISSUANCE OF AMENDMENTS TO REVISE TS 3.6.4.1, "SECONDARY CONTAINMENT" (CAC NOS. MF9590 AND MF9591; EPID L-2017-LLA-0216) DATED JANUARY 22, 2018

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