



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

February 22, 2019

Ms. Cheryl A. Gayheart
Regulatory Affairs Director
Southern Nuclear Operating Co., Inc.
3535 Colonnade Parkway
Birmingham, AL 35243

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF AMENDMENTS TO REVISE TECHNICAL SPECIFICATION 3.8.1, "AC SOURCES - OPERATING" (EPID L-2019-LLA-0026) (**EMERGENCY CIRCUMSTANCES**)

Dear Ms. Gayheart:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 294 to Renewed Facility Operating License No. DPR-57 and Amendment No. 239 to Renewed Facility Operating License No. NPF-5 for the Edwin I. Hatch Nuclear Plant, Unit Nos. 1 and 2 (HNP), respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated February 19, 2019, as supplemented by letter dated February 20, 2019.

The amendments revise TS 3.8.1, "AC Sources - Operating," to change Surveillance Requirement (SR) 3.8.1.8 to increase the voltage limit for the emergency diesel generator (DG) full load rejection test for the Unit No. 2 DGs and the swing (shared) DG. These changes will enable the licensee to complete modifications to the plant's electrical power system, including the addition of new station auxiliary transformers, during the current HNP Unit No. 2 refueling outage, in preparation for returning the unit to power.

The license amendments are issued under emergency circumstances as described in the provisions of paragraph 50.91(a)(5) of Title 10 of the *Code of Federal Regulations* due to the time critical nature of the amendments. In this instance, an emergency situation exists, due to the unanticipated impact of plant modifications on the capability of the affected DGs to meet the existing SR 3.8.1.8 acceptance criteria.

A copy of the related safety evaluation is also enclosed. The safety evaluation describes the emergency circumstances under which the amendments were issued and the final no significant hazards determination. A Notice of Issuance addressing the final no significant hazards determination and opportunity for a hearing associated with the emergency circumstances will be included in the Commission's biweekly *Federal Register* notice.

Sincerely,

A handwritten signature in black ink that reads "James R. Hall". The signature is written in a cursive style with a large, looping initial "J".

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. 294 to DPR-57
2. Amendment No. 239 to NPF-5
3. Safety Evaluation

cc: Listserv



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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. 294
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 February 19, 2019, as supplemented by letter dated February 20, 2019, 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;
 - 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.

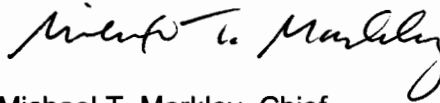
2. Accordingly, the license is hereby amended by page changes as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-57 is hereby amended to read as follows:

- (2) Technical Specifications

- The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B), as revised through Amendment No. 294, 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 30 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: February 22, 2019

ATTACHMENT TO LICENSE AMENDMENT NO. 294

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

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License

License

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TSs

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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. 294, 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

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.8</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. This Surveillance shall not normally be performed in MODE 1 or 2, except for the swing DG. However, this surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 1 controls. Credit may be taken for unplanned events that satisfy this SR. 2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. <p>-----</p> <p>Verify each DG operating at a power factor ≤ 0.88 does not trip and the following voltages are maintained during and following a load rejection of ≥ 2775 kW:</p> <ol style="list-style-type: none"> a. For DGs 1A and 1C, ≤ 4800 V; and b. For DGs 2A, 2C, and 1B, ≤ 5200 V. 	<p>In accordance with the Surveillance Frequency Control Program</p>

(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. 239
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 February 19, 2019, as supplemented by letter dated February 20, 2019, 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;
 - 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.

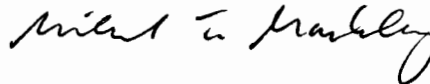
2. Accordingly, the license is hereby amended by page changes as indicated in the attachment to this license amendment, paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-5 is hereby amended to read as follows:

2.C.(2) Technical Specifications

The Technical Specifications (Appendix A) and the Environmental Protection Plan (Appendix B), as revised through Amendment No. 239, 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 30 days from its 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: February 22, 2019

ATTACHMENT TO LICENSE AMENDMENT NO. 239
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

Insert Pages

License

License

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TSs

TSs

3.8-11

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- (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 conditions² 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. 239, 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

² 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.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.8</p> <p style="text-align: center;">-----NOTES-----</p> <ol style="list-style-type: none"> 1. This Surveillance shall not normally be performed in MODE 1 or 2, except for the swing DG. However, this surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. For the swing DG, this Surveillance shall not be performed in MODE 1 or 2 using the Unit 2 controls. Credit may be taken for unplanned events that satisfy this SR. 2. If grid conditions do not permit, the power factor limit is not required to be met. Under this condition, the power factor shall be maintained as close to the limit as practicable. 3. For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units. <p>-----</p> <p>Verify each DG operating at a power factor ≤ 0.88 does not trip and the following voltages are maintained during and following a load rejection of ≥ 2775 kW:</p> <ol style="list-style-type: none"> a. For DGs 2A, 2C, and 1B, ≤ 5200 V; and b. For DGs 1A and 1C, ≤ 4800 V. 	<p>In accordance with the Surveillance Frequency Control Program</p>

(continued)



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

AMENDMENT NO. 294 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-57

AND

AMENDMENT NO. 239 TO RENEWED FACILITY OPERATING LICENSE NO. NPF-5

SOUTHERN NUCLEAR OPERATING COMPANY, INC.

EDWIN I. HATCH NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter dated February 19, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19050A010), as supplemented by letter dated February 20, 2019, (ADAMS Accession No. ML19051A145), the Southern Nuclear Operating Company, Inc. (SNC, the licensee) submitted a license amendment request (LAR) for the Edwin I. Hatch Nuclear Plant (HNP), Unit Nos. 1 and 2. The proposed amendments would revise the HNP Unit No. 1 and Unit No. 2 Technical Specification (TS) requirements of TS 3.8.1, "AC Sources – Operating." Specifically, Surveillance Requirement (SR) 3.8.1.8 would be revised to increase the voltage limit for the emergency diesel generator (DG) full load rejection test from less than or equal to 4800 V to a new value of less than or equal to 5200 V for the Unit No. 2 DGs and the swing DG.

The licensee requested U.S. Nuclear Regulatory Commission (NRC) approval of the proposed amendments in accordance with Section 50.91(a)(5) of Title 10 of the *Code of Federal Regulations* regarding emergency situations, as discussed in Section 4.0 of this safety evaluation. The amendments would allow the licensee to complete modifications to the plant's electrical power system, including the addition of new station auxiliary transformers (SATs), during the current refueling outage at HNP Unit No. 2 in preparation for the unit's return to power.

2.0 REGULATORY EVALUATION

2.1 Electrical System Design Overview

Offsite power is the preferred source of power for the HNP 4160 V emergency buses which power the required safe shutdown components. The electric system transmission network supplies offsite alternating current (AC) electrical power for operating the emergency buses and for startup and shutdown of the HNP units. The network interconnections at HNP consist of four 500 kV transmission lines and four 230 kV transmission lines. A 500/230 kV autotransformer connects the 500 kV switchyard to the 230 kV switchyard. Three physically independent 230 kV circuits are provided from the switchyard to startup auxiliary transformers (SATs) 1C, 1D, 2C, and 2D. SATs 1C and 2C share one 230 kV circuit and SATs 1D and 2D have independent circuits.

The onsite standby AC power supply for HNP Unit No. 1 and HNP Unit No. 2 consists of five diesel generator (DG) units, which supply standby power to the 4160 V emergency buses. DGs 1A and 1C supply the Unit No. 1 emergency buses, and DGs 2A and 2C supply the Unit No. 2 emergency buses. DG 1B is shared between the two units.

Current and planned electrical power system modifications at HNP include the replacement of the existing SATs and the addition of an SAT for each unit. The modifications also reconfigure the electrical circuit paths between the SATs and the Class 1E electrical distribution system such that no more than two 4160 V emergency buses can be supplied by a single SAT. This new configuration will improve the electrical loading margin associated with each transformer and eliminate the reliance on one SAT supplying electrical power to three 4160 V emergency buses during normal or accident conditions when the other SAT is unavailable. During the current Unit No. 2 refueling outage, the licensee is replacing SAT 2C and adding new SAT 2E. Similar modifications are planned for Unit No. 1 during that unit's next scheduled refueling outage in the spring of 2020.

2.2 Regulatory Requirements and Guidance:

The construction permits of HNP Unit No. 1 and Unit No. 2 were issued on September 30, 1969, and on December 27, 1972, respectively. Consequently, HNP Unit No. 2 is licensed in conformance with 10 CFR Part 50, Appendix A, "General Design Criteria." HNP Unit No. 1 is licensed in conformance with the 1967 version of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plant Construction Permits" (ADAMS Accession No. ML043310029). HNP Unit No.1 Final Safety Analysis Report (FSAR), Appendix F, "Conformance To Atomic Energy Commission (AEC) Criteria," describes the relevant licensing bases for Unit No. 1, as follows:

Section F.2 of this appendix contains an evaluation of the design bases of Hatch Nuclear Plant-Unit No. 1 (HNP-1) based on the current understanding of the intent of the "General Design Criteria for Nuclear Power Plant Construction," issued for comment in July 1967.

Section F.3 contains an evaluation of the design bases of HNP-1 based on the current understanding of the intent of the "General Design Criteria for Nuclear Power Plants," effective May 21, 1971, and subsequently amended July 7, 1971. Each of the AEC criteria is followed by a discussion of the plant design. Applicable references are made to facilitate comparisons.

The HNP-1 construction permit was received under the 70 general design criteria discussed in section F.2. The HNP-1 design bases were not, therefore, developed in consideration of the 64 new general design criteria discussed in section F.3. The applicant has, however, evaluated the HNP-1 design bases against the new criteria.

The NRC staff considered the following requirements in its review of the LAR:

Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 36 (50.36), "Technical specifications," requires that TSs shall be included in applications for a license authorizing operation of a production or utilization facility.

10 CFR 50.36(c) requires that TSs include items in five specific categories related to station operation. These categories are: (1) safety limits, limiting safety system settings, and limiting control settings, (2) Limiting conditions for operation (LCOs), (3) Surveillance requirements (SRs), (4) Design features, and (5) Administrative controls. The proposed changes discussed in this safety evaluation include changes to SRs.

10 CFR 50.36(c)(3) requires that surveillance requirements relating to test, calibration, or inspection are to assure that the necessary quality of systems and components is maintained.

10 CFR 50 Appendix A, General Design Criterion (GDC) 17, "*Electric power systems*," requires, in part, that an onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. The onsite electric power supplies and the onsite electric distribution system shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure. In addition, this criterion requires provisions to minimize the probability of losing electric power from any of the remaining supplies as a result of the loss of power from the unit, the transmission network, or the onsite electric power supplies.

10 CFR 50 Appendix A, GDC 18, "*Inspection and testing of electric power systems*," requires, in part, that electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features.

Atomic Energy Commission Preliminary GDC 39, "Emergency Power for Engineered Safety Features (ESF)," states, in part, that alternate power systems shall be provided and designed with adequate independency, redundancy, capacity, and testability, to permit the functioning required of the engineered safety features. As a minimum, the onsite power system and the offsite power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.

HNP Unit No. 1 FSAR Appendix F, Section F.2, discusses compliance with AEC GDC 39 and states:

Sufficient offsite and standby (redundant, independent, and testable) auxiliary sources of electrical power are provided to attain prompt shutdown and

continued maintenance of the plant in a safe condition. The capacity of the offsite and onsite power sources are independently adequate to accomplish the required ESF functions, assuming a failure of a single active component in each power system.

The NRC staff also considered the following guidance document in its review of the LAR:

NUREG-1433, "Standard Technical Specifications [STS] General Electric BWR/4 Plants," Volume 1 - Specifications, Revision 4.0 (ADAMS Accession No. ML12104A192).

3.0 TECHNICAL EVALUATION

3.1 Background

As described in the LAR, on February 16, 2019, during the performance of the SR 3.8.1.8 full load rejection testing on the swing DG (DG 1B), the DG voltage exceeded the maximum acceptance criteria of 4800 Volts (V). A similar condition is expected for the Unit No. 2 DGs (DGs 2A and 2C) following modifications of the remaining Unit No. 2 station auxiliary transformers (SATs) supporting the Unit No. 2 degraded voltage protection modifications. With both Unit No. 2 DGs inoperable concurrent with the swing DG inoperable, Unit No. 2 TS LCO 3.8.2.b would not be met, which would require immediately suspending core alterations, immediately suspending movement of irradiated fuel assemblies, and immediately initiating action to restore the DG to operable status; and Unit No. 1 TS LCO 3.8.1.f would not be met, which would require restoring a required Unit No. 2 DG to operable status within 7 days or shut down the unit. Therefore, according to the licensee, the proposed amendment is needed to complete the degraded voltage protection modifications on Unit No. 2 and allow the current Unit No. 2 refueling outage to continue with sufficient operable onsite AC sources available to Unit Nos. 1 and 2.

In the LAR, the licensee requested changes to a TS SR that was previously determined to be acceptable to meet the requirements of 10 CFR 50.36(c)(3). Per the Commission's Final Policy Statement on Technical Specifications (38 FR 39132), the Commission has concluded that where STS requirements are generally applicable, the STS should be adopted unless adequate justification for acceptance of a plant-specific Technical Specification is provided.

3.2 Description of Proposed Change

The current Unit No. 1 SR 3.8.1.8 states:

"Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW."

The proposed amendment would revise Unit No. 1 TS SR 3.8.1.8 to state:

"Verify each DG operating at a power factor ≤ 0.88 does not trip and the following voltages are maintained during and following a load rejection of ≥ 2775 kW:

- a. For DGs 1A and 1C, ≤ 4800 V; and
- b. For DGs 2A, 2C, and 1B ≤ 5200 V."

The current Unit No. 2 SR 3.8.1.8 states:

“Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.”

The proposed amendment would revise Unit No. 2 TS SR 3.8.1.8 to state:

“Verify each DG operating at a power factor ≤ 0.88 does not trip and the following voltages are maintained during and following a load rejection of ≥ 2775 kW:

- a. For DGs 2A, 2C, and 1B, ≤ 5200 V; and
- b. For DGs 1A and 1C, ≤ 4800 V.”

3.3 NRC Staff Evaluation

In the LAR and its supplement, the licensee stated that the HNP DGs are manufactured by Fairbanks Morse. DGs 2A and 2C have a continuous rating of 2850 KW and up to a 30-minute rating of 3500 KW. The swing DG has a 1000-hour rating of 2850 KW and up to a 168-hour rating of 3250 KW. These DGs are rated at 4160 V, three-phase, 60 Hz, and are capable of attaining rated frequency and voltage within 12 seconds after receipt of a start signal.

According to the HNP TS Bases, SR 3.8.1.8 demonstrates the DG capability to reject a full load without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This SR ensures proper engine generator load response under the simulated test conditions. The test under this SR simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG does not trip upon loss of the load. The SR acceptance criteria (i.e., power factor and maximum voltage) provide damage protection for the DG. While the DG is not expected to experience this transient during an event, and continues to be available, the test response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

In the LAR and its supplement, the licensee provided an analysis of the effect of an increased voltage limit on the components that are subjected to the transient voltages. The NRC staff evaluated the licensee's analysis as discussed below.

Effects on Diesel Generators

a. DG Voltage Rating

As described in the LAR and its supplement, Fairbanks Morse provided a letter dated February 17, 2019, stating that the DGs were constructed and subjected to a high potential test at two times the rated voltage plus 1000 volts for one minute (i.e., 9320 V). Therefore, according to the licensee and the manufacturer, the DGs can withstand significantly higher voltages than the proposed voltage limit during DG full load rejection testing.

The NRC staff notes that the proposed SR voltage limit acceptance criterion of 5200 V is bounded by the HNP DGs' test voltage rating of 9320 V.

b. DG Speed Limit

As described in the LAR and its supplement, the Fairbanks Morse vendor manual states that the generator is protected with an overspeed setting of 112% to 115% of rated speed. The overspeed trip setting will sense an overspeed and shut down the engine. The vendor indicates that the overspeed of the alternator is rated for 125%. The HNP swing DG did not experience an overspeed trip during the full load rejection surveillance test performed on February 16, 2019.

Based on the above, the NRC staff finds there is reasonable assurance that the proposed increased voltage limit for SR 3.8.1.8 would not adversely impact the DG's intended safety function. The DG damage protection would be maintained, and the DG would not be degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

Effects on Engineered Safety Feature (ESF) Buses

As described in the LAR and its supplement, the increased ESF bus operating voltage was calculated using ETAP, Version 12.6.0N. The calculated bus operating voltage values were confirmed during the post-modification testing performed for ESF Bus 2F. The increased initial voltage on the 2F 4160 V bus was due to installation of the new SAT 2E. The proposed DG transient voltage limit of 5200 V during a full load rejection test was determined due to evaluation of historical data which showed that there was an 800-volt difference between the initial bus operating voltage and the peak transient voltage. Using the new initial voltage on the Unit No. 2 ESF buses for the test, the transient voltage expected on DGs 2A and 2C during a full load rejection test would be approximately 5100 V. Therefore, a value of 5200 V as the voltage limit was proposed for SR 3.8.1.8 to ensure the Unit No. 2 DGs would meet the SR acceptance criteria.

Based on the above, the NRC staff finds there is reasonable assurance that by confirming the calculated ESF bus operating voltage increase for bus modification testing, the proposed increased voltage limit for SR 3.8.1.8 would not adversely impact the ESF buses.

Effects on Cables

a. Power Cables

As described in the LAR and its supplement, the power cables used in the 4.16 kV system at HNP from the breaker to the DG are 3/C 500 MCM triplex EPR insulated cables and rated for 15 kilovolts (kV). Thus, the voltage rating of the power cables exceeds the proposed voltage limit during a DG full load rejection test by a substantial margin, and the power cables will not experience detrimental effects due to transient voltages up to 5200 V.

b. Control Cables

As described in the LAR and its supplement, the DG control cables have a rating of 600 V. For an evaluated transient voltage of 9320 V, the associated maximum voltage the control cables would experience is 269 V. Therefore, the control cables would not experience detrimental effects due to transient voltages up to 5200 V.

Based on the above, the NRC staff finds there is reasonable assurance that the power and control cable ratings bound the voltage transients the cables would experience during the full load rejection testing, and therefore the proposed increased voltage limit for SR 3.8.1.8 would not adversely impact these cables.

Effects on Switchgear

As described in the LAR and its supplement, the vendor manual for the Westinghouse DHP switchgear states that the switchgear is designed to withstand an impulse test of 60 kV; and a factory production test of 19 kV at 60 Hz for one minute was performed. The switchgear is designed for elevated voltage, and thus there would be no adverse effect on the ability of the switchgear to operate following a voltage transient of 5200 volts for a short duration.

Based on the above, the NRC staff finds there is reasonable assurance that the switchgear was tested at a voltage much higher than 5200 V, and therefore the proposed increased voltage limit for SR 3.8.1.8 would not adversely impact the switchgear.

Effects on DG Control Components

As described in the LAR and its supplement, the HNP DG voltage regulators are MPR/Basler Electric automatic voltage regulators (AVRs). The exciter portion of the excitation system consists of power current transformers, saturable transformers, linear reactors, and the AVR power supply transformer. These transformers are connected to the output of the DG via their primary windings and are isolated from the exciter output. The voltage regulator portion of the excitation system includes the AVR, which obtains voltage sensing from potential transformers. These transformers are connected to the output of the generator via their primary windings. The Basler design employs a 12 kV dielectric withstand rating for the primary windings of these transformers. Therefore, a DG peak transient voltage of 5200 V is well within the ratings of the exciter and AVR.

Based on the above, the NRC staff finds there is reasonable assurance that the primary windings of the potential transformers are rated at a voltage much higher than 5200 V, and therefore the proposed increased voltage limit for SR 3.8.1.8 would not adversely impact the DG voltage regulators.

Effects on Grid Stability

Grid stability is a function of the overall grid configuration with all electrical power lines and equipment connected or synchronized, and the balance of the generation compared to the grid loading. When the DG voltage has been synchronized with the grid voltage, the paralleling circuit breaker can be closed. Once the paralleling circuit breaker has closed, the generator set and grid supplies are "paralleled". At this stage, the generator set output is normally zero, so it is contributing no power to the paralleled system.

As described in the LAR and its supplement, the resulting transient voltage on the DG is due to performing the full load rejection test while in parallel with the offsite power grid. This is a simulated test of actual DG loading conditions during an accident with no offsite power. To simulate a full load rejection, the 4160 V feeder breaker at the safety-related bus is opened. At the time after the breaker has opened, the 4160 V bus does not experience the peak transient voltage that occurs at the DG.

Based on the above, the NRC staff finds there is reasonable assurance that the proposed increased voltage limit for SR 3.8.1.8 would not adversely impact the grid stability.

3.4 Evaluation of SR 3.8.1.8 Changes

Hatch Unit Nos. 1 and 2 have separate TS. Each TS 3.8.1, SR 3.8.1.8 is comparable in purpose to the STS TS 3.8.1, SR 3.8.1.9. Differences at Hatch from the STS include a Note 3 being specified to address the swing DG (1B), and an opposite unit DG is included in the SR. The extent to which the opposite unit DGs are needed is addressed in LCO 3.8.1 for each unit and is not being changed.

The Hatch SR 3.8.1.8 for each unit is currently worded as follows:

Verify each DG operating at a power factor ≤ 0.88 does not trip and voltage is maintained ≤ 4800 V during and following a load rejection of ≥ 2775 kW.

Hatch uses STS language in the wording of SR including "each" DG meaning all DGs specified in the LCO. Because "each" required DG is included in the SR it is necessary to include an upper voltage limit in the SR. In the LAR, only changes to the upper voltage limits for the Unit No. 2 DGs and the swing DG are proposed, due to installation of the new startup transformer 2E.

SNC proposes to address this by specifying separate voltage limits for each set of DGs. The proposed wording of SR 3.8.1.8 for Unit No. 1 is:

Verify each DG operating at a power factor ≤ 0.88 does not trip and the following voltages are maintained during and following a load rejection of ≥ 2775 kW:

- a. For DGs 1A and 1C, ≤ 4800 V; and
- b. For DGs 2A, 2C and 1B, ≤ 5200 V.

The proposed wording of SR 3.8.1.8 for Unit No. 2 is:

Verify each DG operating at a power factor ≤ 0.88 does not trip and the following voltages are maintained during and following a load rejection of ≥ 2775 kW:

- a. For DGs 2A, 2C and 1B, ≤ 5200 V; and
- b. For DGs 1A and 1C, ≤ 4800 V.

The proposed changes, while similar to the STS in function, are unique to Hatch by maintaining a separate voltage specification of ≤ 5200 V for the 1B swing DG and the Unit No. 2 DGs for which appropriate justification is included in the LAR. The existing 4800 V limit is maintained for the Unit No. 1 DGs.

The NRC staff has determined that the licensee's justification for the changes is acceptable. The similarity in function to the STS SR is maintained while including the unique power factor specification for Hatch and adding the separate voltage limits. Therefore, the NRC staff has determined that the proposed language for Hatch SR 3.8.1.8 for both units is acceptable and will continue to meet 10 CFR 50.36(c)(3) because it will continue to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

3.5 NRC Staff Conclusion

The NRC staff has reviewed the licensee's proposed changes to the HNP TSs to increase the voltage limit for the emergency diesel generator load rejection test required by SR 3.8.1.8. Based on the information provided in the LAR and its supplement, the NRC staff finds that the licensee's proposed changes provide reasonable assurance, because the proposed changes continue to meet the intent of Preliminary GDC 39, GDC 17, and GDC 18 concerning the availability, capacity, and capability of the electrical power systems. The NRC staff has determined that the proposed changes are also consistent with 10 CFR 50.36(c)(3), because the revised surveillance requirements relating to test, calibration, or inspection continue to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. Therefore, the NRC staff concludes that the licensee's proposed changes are acceptable.

4.0 EMERGENCY SITUATION

Background

The NRC's regulations in 10 CFR 50.91(a)(5) state that where the NRC finds that an emergency situation exists, in that failure to act in a timely way would result in derating or shutdown of a nuclear power plant, or in prevention of either resumption of operation or of increase in power output up to the plant's licensed power level, it may issue a license amendment involving no significant hazards consideration without prior notice and opportunity for a hearing or for public comment. In such a situation, the NRC will publish a notice of issuance under 10 CFR 2.106, providing for opportunity for a hearing and for public comment after issuance.

As discussed in SNC's application dated February 19, 2019, the licensee requested that the proposed amendments be reviewed by the NRC on an emergency basis. The licensee stated that the emergency situation resulted from the unexpected high voltage resulting from the full load rejection test on the swing DG during post-modification testing of a newly installed station auxiliary transformer (SAT), in support of Unit No. 2 degraded voltage protection modifications. The licensee determined that this increased voltage following a full load rejection was not an anomaly, but rather the result of the higher operating bus voltage due to installation of the new SAT. Successful completion of the SR is required to establish operability of the swing DG, which is necessary to continue modification of the remaining Unit No. 2 SATs in support of the Unit No. 2 degraded voltage protection modifications. The site is currently implementing modifications to the 4.16kV ESF buses and degraded voltage relay (DVR) modifications. These modifications are critical path for completing the Unit No. 2 outage and restoring Unit No. 2 to operation.

As a result of these circumstances, the licensee cannot complete the degraded voltage protection modification to eliminate the use of manual actions in lieu of automatic degraded voltage protection on the Unit No. 2 4.16 kV emergency buses, as required by Unit No. 2 License Condition 2.C(3)(i), and Unit No. 2 cannot resume operation unless the current TS are modified to increase the voltage limit specified in SR 3.8.1.8 for the Unit No. 2 DGs and the swing DG.

Post-modification testing for the 2G 4.16kV ESF bus is expected to be completed on February 22, 2019 and the licensee cannot commence work on the next electrical division until

the swing DG is verified operable. Neither a routine nor an exigent amendment can be processed prior to February 22, 2019.

NRC Staff Conclusion

The NRC staff reviewed the licensee's basis for processing the proposed amendments as emergency amendments and agrees that an emergency situation exists consistent with the provisions in 10 CFR 50.91(a)(5). Furthermore, the NRC staff determined that: (1) the licensee used its best efforts to make a timely application; (2) the licensee could not reasonably have avoided the situation; and (3) the licensee has not abused the provisions of 10 CFR 50.91(a)(5). Based on these findings, and the determination that the amendments involve no significant hazards consideration as discussed below, the NRC staff has determined that a valid need exists for issuance of the license amendments using the emergency provisions of 10 CFR 50.91(a)(5).

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

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.

The licensee's evaluation of the issue of no significant hazards consideration is presented below:

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

Response: No.

The proposed amendment does not affect accident initiators or precursors nor adversely alter the design assumptions, conditions, and configuration of the facility. The proposed amendment does not alter any plant equipment or operating practices with respect to such initiators or precursors in a manner that the probability of an accident is increased.

The proposed change is an increase of the voltage limit in the DG full load rejection surveillance test for the Unit No. 2 DGs and the swing DG. The DGs' safety function is solely mitigative and is not needed unless there is a loss of offsite power. The DGs do not affect any accident initiators or precursors of any accident previously evaluated. The proposed increase in the TS SR voltage limit does not affect the DGs' interaction with any system whose failure or malfunction can initiate an accident. Therefore, the probability of occurrence of an accident previously evaluated is not significantly increased. The DG safety function is to provide power to safety related components needed to mitigate the consequences of an accident following a loss of offsite power. The purpose of the TS SR voltage limit is to assure DG damage protection following a full load rejection. The technical analysis performed to support this proposed amendment has demonstrated that the DGs can withstand voltages above the proposed limit without a loss of protection. The proposed higher limit will continue to provide assurance that the DGs are protected, and the safety function of the DGs will be

unaffected by the proposed change. Therefore, the consequences of an accident previously evaluated will not be significantly increased.

As a result, the proposed change does not involve 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 previously evaluated?

Response: No.

With respect to a new or different kind of accident, there are no new DG failure modes created and the DGs are not an initiator of any new or different kind of accident. The proposed increase in the TS SR voltage limit does not affect the interaction of the DGs with any system whose failure or malfunction can initiate an accident. The proposed amendment will not affect the normal method of plant operation or revise any operating parameters. No new accident scenarios, transient precursor, failure mechanisms, or limiting single failures will be introduced as a result of this proposed change and the failure modes and effects analyses of the DGs are not altered as a result of this proposed change. Therefore, the proposed change will not create the possibility of a new or different accident previously evaluated.

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

Response: No.

The margin of safety is related to the ability of the fission product barriers to perform their design functions during and following an accident. These barriers include the fuel cladding, the reactor coolant system, and the containment. The performance of these fission product barriers is not affected by the proposed change.

The margins of safety applicable to the proposed change are those associated with the ability of the DGs to perform their safety function to support mitigation systems during and following an accident with a loss of offsite power. The proposed change does not eliminate any surveillance or alter the frequency of surveillances required by the TS. The increase in the TS SR voltage limit will not affect the ability of the DGs to perform their safety function. The technical analysis performed to support this amendment demonstrates that this ability will be unaffected and an increase in the TS SR voltage limit will not affect this ability. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above evaluation, 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 amendments and that the amendments should be issued as allowed by the criteria contained in 10 CFR 50.91.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia State official was notified of the proposed issuance of the amendments on February 20, 2019, and the State official had no comments.

7.0 ENVIRONMENTAL CONSIDERATION

The amendments change the requirements with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The 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. 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.

8.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) the amendments do not (a) involve a significant increase in the probability or consequences of an accident previously evaluated; or (b) create the possibility of a new or different kind of accident from any accident previously evaluated; or (c) involve a significant reduction in a margin of safety; (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (3) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (4) 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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Date: February 22, 2019

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT, UNIT NOS. 1 AND 2 - ISSUANCE OF AMENDMENTS TO REVISE TECHNICAL SPECIFICATION 3.8.1, "AC SOURCES - OPERATING" (EPID L-2019-LLA-0026) (EMERGENCY CIRCUMSTANCES) DATED FEBRUARY 22, 2019

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