Southern Nuclear

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U. S. Nuclear Regulatory Commission
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Edwin I. Hatch Nuclear Plant – Units 1 and 2
Emergency License Amendment Request for Technical Specification 3.8.1
Regarding Voltage Limit Increase for Emergency
Diesel Generator Load Rejection Surveillance Test

Ladies and Gentlemen:

Pursuant to the provisions of Section 50.90 of Title 10 of the Code of Federal Regulations (10 CFR), Southern Nuclear Operating Company (SNC) hereby requests the proposed amendment to the technical specifications (TS), for Hatch Nuclear Plant (HNP) Unit 1 renewed operating license DPR-57 and Unit 2 renewed operating license NPF-5. The proposed amendment would revise surveillance requirement (SR) 3.8.1.8 in TS 3.8.1, "AC Sources – Operating," to increase the voltage limit in the emergency diesel generator (DG) full load rejection test for the Unit 2 DGs and the swing DG. The proposed amendment to HNP Unit 1 and 2 TS is being requested on an emergency basis for the Unit 2 DGs and swing DG, pursuant to 10 CFR 50.91(a)(5). The voltage limit for the Unit 1 DGs are not affected by this proposed change.

On February 16, 2019, the maximum DG voltage criteria was exceeded during a performance of the full load rejection test on the swing DG as a result of post-modification testing of a newly installed station auxiliary transformer in support of enhancing the Unit 2 degraded voltage protection. A similar condition is expected for the Unit 2 DGs following modifications of the remaining Unit 2 station auxiliary transformers supporting Unit 2 degraded voltage protection enhancement. Based on engineering review and consultation with the vendor, SNC has determined that the DGs, including the voltage regulator, are performing as designed and that the basis for the voltage criteria, i.e., DG damage protection, can be maintained with a higher voltage limit. Accordingly, SNC is proposing a license amendment to the DG load rejection surveillance test that increases the voltage limit for the Unit 2 DGs and the swing DG.

SNC requests approval of the proposed license amendment by as soon as possible and no later than February 22, 2019 based on emergent circumstances on HNP Unit 2 in accordance with the provisions of 10 CFR 50.91(a)(5). A discussion of the emergency situation is provided in the enclosure. SNC requests approval of the proposed license amendment for HNP Unit 2,

including conforming changes to HNP Unit 1 TS, and requests that the proposed change be permanent because the proposed changes reflect the modified electrical design on Unit 2. The proposed amendment will be implemented immediately upon issuance.

The enclosure provides a basis for the proposed change, including a proposed no significant hazards considerations analysis. Attachments 1 and 2 contain marked-up TS pages and revised TS pages, respectively, reflecting the proposed changes. A revision to the TS Bases is not needed for this proposed amendment.

In accordance with the SNC administrative procedures and the HNP quality assurance program manual, this proposed amendment has been previously reviewed and approved by the plant review board and approved by the plant manager.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this license amendment request by transmitting a copy of this letter, enclosure, and attachments to the designated State Official.

This letter contains no NRC commitments. If you have any questions, please contact Jamie Coleman at 205.992.6611.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 19th day of February 2019.

Respectfully submitted,

C. A. Gayheart
Director, Regulatory Affairs
Southern Nuclear Operating Company

CAG/RMJ

Enclosure: Basis for Proposed Change

Attachments:
1. HNP Unit 1 and 2 Technical Specification Marked-up Pages
2. HNP Unit 1 and 2 Revised Technical Specification Pages

cc: Regional Administrator, Region II
NRR Project Manager – Hatch
Senior Resident Inspector – Hatch
Director, Environmental Protection Division - State of Georgia
RType: CHA02.004

Edwin I. Hatch Nuclear Plant – Units 1 and 2

Emergency License Amendment Request for Technical Specification 3.8.1 Regarding Voltage Limit Increase for Emergency Diesel Generator Load Rejection Surveillance Test

Enclosure

Basis for Proposed Change

Enclosure – Basis for Proposed Change

1. Summary Description

The proposed amendment to Hatch Nuclear Plant (HNP) – Units 1 and 2 renewed operating licenses would revise surveillance requirements (SR) 3.8.1.8 in technical specification (TS) 3.8.1, "AC Sources – Operating," to increase the voltage limit in the emergency diesel generator (DG) full load rejection test for the Unit 2 DGs and the swing DG.

On February 16, 2019, the maximum DG voltage criteria was exceeded during a performance of 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 2 degraded voltage protection modification. A similar condition is expected for the Unit 2 DGs following modifications of the remaining Unit 2 SATs supporting the Unit 2 degraded voltage protection modification. Based on engineering review and consultation with the vendor, SNC has determined that the DGs, including the voltage regulator, are performing as designed and that the basis for the voltage criteria, i.e., DG damage protection, can be maintained with a higher voltage limit. Accordingly, SNC is proposing a license amendment to the DG load rejection surveillance test that increases the voltage limit for the Unit 2 DGs (DGs 2A and 2C) and the swing DG (DG 1B) from 4800 V to 5200 V. The voltage limit for the Unit 1 DGs (DGs 1A and 1C) are not affected by this proposed change.

2. Detailed Description

2.1 Emergency Circumstances

The emergency situation resulted from the unexpected high voltage following a full load rejection during performance of the full load rejection test on the swing DG during post-modification testing of a newly installed SAT in support of Unit 2 degraded voltage protection modification. It has been evaluated and determined that this increased voltage following a full load rejection was not an anomaly, but rather a 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 2 SATs in support of the Unit 2 degraded voltage protection modification. 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 2 outage and restoring Unit 2 to operation. Post-modification testing for the 2G 4.16kV ESF bus is expected to be completed on February 22, 2019 and the site cannot proceed to 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.

SNC requests an expedited review of the proposed license amendment in accordance with the provisions of 10 CFR 50.91(a)(5) based on the following emergent circumstances: (1) the circumstances leading to the emergency were unforeseen; (2) it was not identified in advance, during development and implementation of the electrical system modification supporting enhanced degraded voltage protection, that the DGs would be incapable of meeting the current voltage limit specified in the DG full load rejection test; and (3) the swing DG previously passed its required TS surveillances and other required testing prior to the installation of the new transformer. This condition is also expected to occur on the Unit 2 DGs upon modification of their respective SATs. If the proposed TS amendment is not approved and the degraded voltage protection modification proceeds, this will result in Unit 2 DGs inoperable concurrent with the swing

DG inoperable, thereby, resulting in limiting condition for operation (LCO) 3.8.2.b not met on Unit 2, 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 LCO 3.8.1.f not met on Unit 1, which would require restoring a required Unit 2 DG to operable status within 7 days or shutdown the unit. As a result, the degraded voltage protection modification to eliminate the use of manual actions in lieu of automatic degraded voltage protection on the Unit 2 4.16 kV emergency buses, as required by Unit 2 License Condition 2.C(3)(i), cannot be completed and Unit 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 2 DGs and the swing DG.

On the basis of the discussion herein, SNC has determined that emergency circumstances exist and has used its best efforts to make a timely application and did not knowingly cause the emergent situation.

2.2 System Design and Operation

At HNP, offsite power is supplied to the 230 kV and 500 kV switchyards from the transmission network. Prior to the enhanced degraded voltage protection modification, which is currently in progress on Unit 2, two electrically and physically separated circuits provided AC power from the 230 kV switchyards, through SATs 2C and 2D to 4.16 kV engineered safety feature (ESF) buses 2E, 2F, and 2G. SAT 2D provided the normal source of power to ESF buses 2E, 2F, and 2G. If any 4.16 kV ESF bus lost power, an automatic transfer from SAT 2D to SAT 2C occurred.

At HNP, some components required by Unit 1 are powered from Unit 2 sources (e.g., standby gas treatment system and low pressure coolant injection valve load centers). Therefore, at least one Unit 2 DG must be operable to support Unit 1 operation.

To enhance degraded voltage detection and mitigation to the HNP Class 1E electrical distribution system, SNC is in the process of modifying the electrical power scheme at HNP. The degraded voltage protection modification includes replacing the existing C and D SATs on both units and adding an additional SAT E for each unit. This modified configuration includes realigning the 4.16 kV ESF buses to increase the expected voltage range which allows the installation of automatic DVRs. The installation of the degraded voltage protection modification is in progress on Unit 2 during the current U2R25 outage. The degraded voltage protection modification for Unit 1 is scheduled in the 2020 spring outage, U1R29.

The final electrical configuration for Unit 2 at the completion of the degraded voltage protection modification will consist of three electrically and physically separated circuits that provide AC power, through SATs 2C, 2D, and 2E to 4.16 kV ESF buses 2E, 2F, and 2G. SATs 2E, 2C, and 2D will provide the normal source of power to ESF buses 2E, 2F, 2G, respectively. If any 4.16 kV ESF bus loses power, an automatic transfer from the normal offsite power source to its alternate offsite power source occurs; SATs 2D, 2E, and 2C will provide alternate source of power to ESF buses 2E, 2F, and 2G, respectively.

2.3 Current Technical Specification Requirements

Currently, SR 3.8.1.8 requires a verification that 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 with a frequency in accordance with the surveillance frequency control program. The current frequency of SR 3.8.1.8, as specified in the plant procedures that implement the surveillance frequency control program, is 24 months.

2.4 Reason for the Proposed Change

On February 16, 2019, the maximum DG voltage criteria was exceeded during a performance of the full load rejection test on the swing DG during post-modification testing of a newly installed SAT 2E in support of Unit 2 degraded voltage protection modification. In this condition, the degraded voltage protection modification on Unit 2 cannot proceed without resulting in both Unit 2 DGs and the swing DG being inoperable. With both Unit 2 DGs inoperable concurrent with the swing DG inoperable, Unit 2 TS LCO 3.8.2.b would not 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 1 TS LCO 3.8.1.f would not met, which would require restoring a required Unit 2 DG to operable status within 7 days or shutdown the unit. Therefore, the proposed amendment is needed to complete the degraded voltage protection modification on Unit 2, which will eliminate the use of manual actions in lieu of automatic degraded voltage protection on the Unit 2 4.16 kV ESF buses, as required by Unit 2 License Condition 2.C(3)(i), and allow the refueling outage on Unit 2 to continue with sufficient operable onsite AC sources available to Units 1 and 2.

2.5 Description of the Proposed Change

The following revisions are proposed to SR 3.8.1.8 (deleted text in ~~strikeout~~ and added text in *italics*):

- Unit 1 SR 3.8.1.8 is revised to state:

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

  a. For DGs 1A, 1B, and 1C, ≤ 4800 V; and

  b. For DGs 2A and 2C, ≤ 5200V."

- Unit 2 SR 3.8.1.8 is revised to state:

  "Verify each DG operating at a power factor ≤ 0.88 does not trip and ~~voltage is~~ *the following voltages are* maintained ~~≤ 4800 V~~ 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, ≤ 4800V."

- Note 3 to Unit 1 and Unit 2 SR 3.8.1.8 is revised to state:

  "For the swing DG, a single test at the specified Frequency will satisfy this Surveillance for both units *provided it meets the voltage requirements specified herein*."

3. Technical Evaluation

The purpose of a full load rejection test as performed under SR 3.8.1.8 is to demonstrate that the DG is capable of rejecting 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 DG load response under the simulated test conditions. This test 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. These acceptance criteria provide for DG damage protection. While the DG is not expected to experience this transient during the event, the SR requirements ensure that the DG is not degraded for future operation, including re-connection to the bus if the trip initiator can be corrected or isolated. The existing 4800 V limit in SR 3.8.1.8 is based on the pre-modification ESF bus voltages.

In addition, since the swing DG and at least one Unit 2 DG are required to support AC sources on Unit 1 while Unit 1 is operating, conforming changes are necessary in the Unit 1 Technical Specifications. Also, since the operating voltage will be different between 4.16 kV ESF Buses 1F and 2F following the Unit 2 degraded voltage protection modification, the swing DG (i.e., DG 1B) acceptance criteria for Bus 1F and Bus 2F will be different. As such, Note 3 to SR 3.8.1.8 is modified to clarify, when a single test is used to satisfy the full load rejection test for both units, that the applicable voltage requirements for that unit are met. This change is needed because a successful full load rejection of the swing DG performed on Unit 1 will be acceptable to meet Unit 2 criteria. However, a successful full load rejection of the swing DG performed on Unit 2 may not be acceptable to meet Unit 1 criteria.

The voltage overshoot following a full load rejection is a transient condition typically lasting for only a few seconds, with the peak voltage lasting for a much shorter period. The DG control components quickly reduce excitation and return voltage to its normal control point. The swing DG full load rejection test shows that the maximum voltage was present for approximately five cycles. Components subjected to these transient voltages include the generator, the cables that connect the DG to the 4.16 kV ESF buses, the 4160 V switchgear, and the DG control components. SNC has analyzed the effect of an increased voltage limit on these components as described herein.

Generator

The HNP DGs are Fairbanks Morse DGs. 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 up to a 168-hour rating of 3250 KW. These DGs diesel generators 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. Fairbanks Morse identified that alternator hi-potential (hi-pot) factory testing on the generators is conducted for one minute at twice the rated voltage plus 1000 volts; 9320 V. Thus, the generator can withstand significantly higher voltages than the proposed voltage limit during DG full load rejection testing.

As stated in Subsection 6.2.5 of Institute of Electrical and Electronic Engineers (IEEE) 387-1972 (Ref. 1), the DG shall demonstrate the capability of rejecting the maximum rated load without exceeding speeds or voltages which will cause tripping, mechanical damage, or harmful overstresses. Additionally, Fairbanks Morse has evaluated the generator at the higher voltage and provided concurrence that the DG will not incur mechanical damage or harmful overstresses. NRC Regulatory Guide 1.9, Rev. 0 (formally Safety Guide 9) (Ref. 2), states that when disconnection of the largest single load, the speed of the diesel generator set should not exceed 75% of the difference between nominal speed and the overspeed trip set point or 115% of nominal, whichever is lower. 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 in February 16, 2019. Fairbanks Morris, the generator manufacturer, has verified that a transient overshoot voltage of 5200 volts, which may be experienced every 24 months during testing, does not adversely impact the generator and the generator will not experience detrimental effects due to transient voltages up to 5200 V.

Cables

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 kV. Thus, the voltage rating of the power cables exceed the proposed voltage limit during a DG full load rejection test. The DG control cable is rated at a minimum of 600 V, which provides acceptable margin over the 269 V value which would result from a DG voltage of 9320 V. Therefore, the power and control cables will not experience detrimental effects due to transient voltages up to 5200 V.

Switchgear

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. This is consistent with IEEE C37.20.2-1999, “IEEE Standard for Metal-Clad Switchgear.” The switchgear is designed for elevated voltage and thus it is found that 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.

Control Components

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 transient voltage of 5200 V is well within the ratings of the exciter and AVR.

Series boost static regulator tuning is controlled through the stability feedback potentiometer of the AVR. Per MPR/Basler Electric, AVR tuning is considered a complex solution with risk. The existing margin for voltage and frequency recovery is low. Therefore, tuning the DG AVR to limit the voltage on a DG full load rejection is not a recommended option by the vendor and has been shown by other licensees to be unsuccessful (.e.g, DC Cook nuclear plant). Discussions with the vendor determined that the voltage transient that would result from a short-term DG output voltage of 5200 V would not prevent the voltage regulator, including the sensing potential transformers, from fulfilling its safety function.

Based on the information provided herein, SNC has determined that the proposed voltage limit during a full load rejection test once every 24 months would not adversely affect the generator, the cables that connect the DG safety buses, the 4160-volt switchgear, the DG control components, or the capability of the DG to perform its intended safety function. SNC's determination is based on (1) the maximum voltage (5200 volts) during a full load rejection test lasts for approximately five cycles; (2) generator, cables, and switchgear are tested (hi-pot) at much higher voltage with longer duration; (3) the voltage regulator will continue to fulfill its safety function per the vendor; and (4) manufacturers' confirmation that the generator, exciter, AVR sensing potential transformers, interconnecting cables and devices, and the switchgear would not have any adverse effect on performance due to transient voltage of up to 5200 volts for a short duration.

4. Regulatory Evaluation

4.1 Applicable Regulatory Requirements/Criteria

The onsite AC emergency electrical power system design satisfies 10 CFR 50.36, "Technical specifications," paragraph (c)(2)(ii), Criterion 3. Proper starting and loading of the DGs is considered a primary success path to mitigate the accidents and transients.

The proposed amendment does not delete requirements associated with the DGs and LCO 3.8.1 continues to maintain requirements associated with structures, systems, and components that are part of the primary success path and actuate to mitigate the related design basis accidents and transients. The proposed amendment does not alter the remedial actions or shutdown requirements required by 10 CFR 50.36(c)(2)(i).

The proposed amendment increases the voltage limit in the DG full load rejection surveillance test for the Unit 2 DGs and the swing DG. However, 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. Therefore, the proposed change continues 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 as required by 10 CFR 50.36(c)(3).

The HNP Unit 1 emergency power system was designed to the following applicable Atomic Energy Commission preliminary general design criteria (GDC) identified in Federal Register 32 FR 10213, published July 11, 1967 (ADAMS Accession No. ML043310029):

1967 GDC 39 – Emergency Power for Engineered Safety Features (Category A): The proposed change does not alter the design of the onsite or offsite electric power system design. Alternate power systems continue to be provided and designed, as previously licensed and approved by the NRC, with adequate independency, redundancy, capacity, and testability to permit the function required of the engineered safety features. The onsite power system and the offsite power system continues to, independently, provide this capacity assuming a failure of a single active component in each power system, as previously licensed and approved by the NRC.

The HNP Unit 2 onsite emergency power system was designed to the following 10 CFR Part 50, Appendix A General Design Criteria for Nuclear Power Plants:

GDC 17 – Electric power systems: The proposed change does not alter the design of the onsite or offsite electric power system design and the electric power systems continue to permit functioning of structures, systems, and components important to safety. With the proposed change, the safety function for onsite electric power system continues 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, as previously licensed and approved by the NRC.

Independence, redundancy, and testability of the onsite electric power system, assuming a single failure, has not been impacted by the proposed change.

The electric power from the transmission network to the onsite electric distribution system continues to be supplied by at least two physically independent circuits (not necessarily on separate rights of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions.

Provisions continue to be included, as previously licensed and approved by the NRC, to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies.

GDC 18 – Inspection and testing of electric power systems: The proposed change does not alter the onsite or offsite electrical power system. The proposed change increases the voltage limit of the DG full load rejection test. Electric power systems important to

safety continue to permit appropriate periodic inspection and testing of important areas and features, such as wiring, insulation, connections, and switchboards, to assess the continuity of the systems and the condition of their components. The proposed change does not alter the capability, as previously licensed and approved by the NRC, to test periodically (1) the operability and functional performance of the components of the systems, such as onsite power sources, relays, switches, and buses, and (2) the operability of the systems as a whole and, under conditions as close to design as practical, the full operation sequence that brings the systems into operation, including operation of applicable portions of the protection system, and the transfer of power among the nuclear power unit, the offsite power system, and the onsite power system.

4.2 Precedent

The proposed change is similar to NRC approved license amendments issued to DC Cook nuclear plant, Unit 2 on April 13, 2006 under emergency circumstances and Unit 1 on September 1, 2006, License Amendments 276 and 295, respectively (NRC Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML061010512 and ML061350255). These amendments also increased the voltage criteria in the DG full load rejection test. The accompanying NRC safety evaluation concluded the license amendment would not adversely affect the capability of the DG to perform its intended safety function. NRC staff approval was based on the same justification that the proposed voltage limit, during a full load rejection test once every 24 months, would not adversely affect the generator, the cables that connect the DG safety buses, the 4160-volt switchgear, the DG control components, or the capability of the DG to perform its intended safety function.

In addition, a number of facilities have been granted license amendments to increase the voltage limit for the DG full load rejection test. For example: Braidwood Station Units 1 and 2 License Amendment 187 and Byron Station Units 1 and 2 License Amendment 194, issued on December 17, 2015 (NRC ADAMS Accession No. ML15293A589); Seabrook Unit 1, License Amendment 147 issued on April 24, 2015 (NRC ADAMS Accession No. ML15082A233); and Wolf Creek Station, License Amendment 206 issued on December 2, 2013 as corrected on January 13, 2014 (NRC ADAMS Accession Nos. ML13282A147 and ML14006A218).

4.3 No Significant Hazards Consideration Analysis

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) hereby requests an amendment to Hatch Nuclear Plant (HNP) Unit 1 renewed operating license DPR-57 and Unit 2 renewed operating license NPF-5. The proposed amendment would revise surveillance requirement (SR) 3.8.1.8 in technical specification (TS) 3.8.1, “AC Sources – Operating,” to increase the voltage limit in the emergency diesel generator (DG) full load rejection test for the Unit 2 DGs and the swing DG.

SNC has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

   Response: No

   The proposed amendment 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 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 accident from any accident 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, SNC concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

4.4 Conclusions

In conclusion, based on the considerations discussed herein, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission’s regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5. Environmental Consideration

SNC has determined that the proposed amendment does change a surveillance requirement. The proposed amendment increases the voltage limit in the emergency diesel generator (DG) full load rejection test for the Unit 2 DGs and the swing DG. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released off site, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need to be prepared in connection with the proposed amendment.

6. References

1. Institute of Electrical and Electronic Engineers Standard IEEE 387-1972, “IEEE Trial-Use Standard: Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations,” dated March 20, 1972.

2. NRC Safety Guide 9, “Selection of Diesel Generator Set Capacity for Standby Power Supplies,” dated August 10, 1971 (NRC ADAMS Accession No. ML12305A251).

Edwin I. Hatch Nuclear Plant – Units 1 and 2

Emergency License Amendment Request for Technical Specification 3.8.1 Regarding Voltage Limit Increase for Emergency Diesel Generator Load Rejection Surveillance Test

Attachment 1

HNP Unit 1 and 2 Technical Specification Marked-up Pages

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	----------NOTES---------- 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. ---------- 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~~.~~	In accordance with the Surveillance Frequency Control Program

provided it meets the voltage requirements specified herein

the following voltages are

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

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	----------NOTES---------- 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. ---------- 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.	In accordance with the Surveillance Frequency Control Program

provided it meets the voltage requirements specified herein

the following voltages are

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

(continued)

Edwin I. Hatch Nuclear Plant – Units 1 and 2

Emergency License Amendment Request for Technical Specification 3.8.1 Regarding Voltage Limit Increase for Emergency Diesel Generator Load Rejection Surveillance Test

Attachment 2

HNP Unit 1 and 2 Revised Technical Specification Pages

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	----------NOTES---------- 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 provided it meets the voltage requirements specified herein. ---------- 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, 1B, and 1C, ≤ 4800 V; and b. For DGs 2A and 2C, ≤ 5200 V.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.8	----------NOTES---------- 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 provided it meets the voltage requirements specified herein. ---------- 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.	In accordance with the Surveillance Frequency Control Program

(continued)