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December 21, 2012



Docket Nos.: 50-321
50-366

NL-12-2227

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant – Units 1 and 2
Facility Operating License Amendment Request for
Degraded Voltage Protection Modification Schedule

Ladies and Gentlemen:

In accordance with 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," Southern Nuclear Operating Company (SNC) proposes to revise the Hatch Nuclear Plant (HNP) Unit 1 and Unit 2 Facility Operating Licenses (FOLs), DPR-57 and NPF-5.

On May 25, 2011, the U.S. Nuclear Regulatory Commission (NRC) issued an NRC Component Design Bases Inspection (CDBI) Report to Edwin I. Hatch Nuclear Plant (HNP) (Reference 1 of Enclosure 1). The report included a review of an Unresolved Item (URI 2009006-08, "Degraded Voltage Protection") regarding the licensee's use of administrative controls in lieu of automatic degraded voltage protection to assure adequate voltage to safety-related equipment during design basis events. The results of this review concluded that the measures in effect at HNP to demonstrate compliance with the applicable provisions of 10 CFR 50.55a(h)(2) and 10 CFR Part 50, Appendix A, General Design Criterion 17 (GDC-17) are not acceptable.

This conclusion constituted a change from the position taken by the NRC staff in the February 23, 1995 Safety Evaluation Report (SER) regarding the reliance on administrative controls and manual actions at HNP for maintaining adequate voltage to protect safety-related electrical equipment in the event of degraded grid voltage conditions.

The NRC staff position is that the 1995 SER was issued in error and that a compliance backfit is necessary, as provided for by 10 CFR 50.109(a)(4)(i). SNC appealed this decision in a letter dated June 17, 2011 (NL-11-1065), which was denied by the NRC in a letter dated September 29, 2011. A further SNC appeal, in a letter dated October 28, 2011 (NL-11-2032), was denied by the NRC Executive Director of Operations (EDO) in a letter dated June 19, 2012, based on a chartered review by a Backfit Appeal Panel.

As requested in the June 19, 2012 NRC letter, SNC sent a letter dated August 9, 2012 (NL-12-1598) to provide the plans and schedule to implement a design modification to eliminate manual actions as part of the HNP degraded voltage protection system. This proposed FOL amendment would incorporate the Degraded Voltage Protection modification scheduled completion dates and is administrative in nature.

A discussion of the proposed FOL change, the basis for the change, and Significant Hazards Considerations are provided in Enclosure 1. Enclosures 2 and 3 provide the marked up FOL and clean typed pages of the FOL, respectively, for Hatch Nuclear Plant. SNC has evaluated the proposed FOL change and has determined that it does not involve a significant hazards consideration as defined in 10 CFR 50.92.

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 and enclosures to the designated State Official.

SNC requests approval of the proposed license amendments by December 31, 2013. The proposed changes will be implemented within 60 days of issuance of the amendment.

Mr. M. J. Ajluni states he is Nuclear Licensing Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and, to the best of his knowledge and belief, the facts set forth in this letter are true.

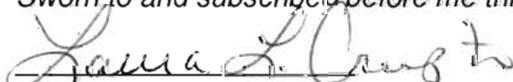
This letter contains no NRC commitments. If you have any questions, please contact Doug McKinney at (205) 992-5982.

Respectfully submitted,



M.J. Ajluni
Nuclear Licensing Director

Sworn to and subscribed before me this 21 day of December, 2012.


Notary Public

My commission expires: 11-2-2013

MJA/JMC



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Enclosures: 1. Basis for Proposed Changes
2. HNP Facility Operating License Markup Pages
3. HNP Facility Operating License Clean Typed Pages

cc: Southern Nuclear Operating Company

Mr. S. E. Kuczynski, Chairman, President & CEO

Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer

Mr. D. R. Madison, Vice President – Hatch

Mr. B. L. Ivey, Vice President – Regulatory Affairs

Mr. B. J. Adams, Vice President – Fleet Operations

RType: CHA02.004

U. S. Nuclear Regulatory Commission

Mr. V. M. McCree, Regional Administrator

Mr. R. E. Martin, NRR Senior Project Manager – Fleet

Mr. E. D. Morris, Senior Resident Inspector – Hatch

State of Georgia

Mr. J. H. Turner, Environmental Director Protection Division

**Edwin I. Hatch Nuclear Plant, Units 1 and 2
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Enclosure 1

Basis for Proposed Changes

Enclosure 1 to NL-12-2227
Basis for Proposed Changes

1. Summary Description

This evaluation supports a request to amend Facility Operating Licenses, DPR-57 and NPF-5, for Edwin I. Hatch Nuclear Plant (HNP) Unit 1 and Unit 2, respectively.

The proposed License Amendment Request (LAR) would revise the HNP Facility Operating Licenses to require Southern Nuclear Operating Company (SNC) to implement modifications that will eliminate the need for administrative controls with regard to 10 CFR 50.55a(h)(2). The enclosed Degraded Grid Protection modification schedule contains the high-level design and engineering proposed milestones.

2. Detailed Description

This LAR includes a proposed change to the HNP Facility Operating Licenses (FOLs) to implement a Degraded Voltage Protection modification. On May 25, 2011, the Nuclear Regulatory Commission (NRC) staff issued a Component Design Bases Inspection (CDBI) Report (Reference 1) to SNC stating that the measures in effect at HNP to demonstrate compliance with the applicable provisions of 10 CFR 50.55a(h)(2) and 10 CFR Part 50, Appendix A, General Design Criterion 17 (GDC-17) are not acceptable.

SNC's project plan includes proposed modifications to replace Startup Auxiliary Transformers (SATs), Degraded Voltage Relays (DVRs), and possible replacement of 4160V breakers and switchgears. A proposed schedule for implementation of the Degraded Voltage Protection modifications is provided in the Technical Evaluation section. SNC to NRC letter dated August 9, 2012 provided a modification schedule.

This change to HNP FOLs will ensure modifications are completed, as scheduled, in a timely and efficient manner.

3. Technical Evaluation

Successful operation of the required safety functions of the Emergency Core Cooling Systems (ECCS) is dependent upon the availability of adequate power sources for energizing the various components such as pump motors, motor operated valves, and the associated control components. The Loss of Power (LOP) instrumentation monitors the 4160V emergency buses. Offsite power is the preferred source of power for the 4160V emergency buses. If the monitors determine that insufficient power is available, the buses are disconnected from the offsite power sources and connected to the onsite diesel generator (DG) power sources.

Currently, The LOP alarm instrumentation prompts the initiation of manual actions to restore the 4160V emergency bus voltages or to initiate a plant shutdown. The required channels of LOP alarm instrumentation ensure the initiation of manual actions to protect the ECCS and other assumed systems from degraded voltage without initiating an unnecessary automatic disconnect from the preferred offsite power source. The manual actions were credited to mitigate the occurrence of a degraded voltage condition and ensure plant safety.

Enclosure 1 to NL-12-2227
Basis for Proposed Changes

HNP must demonstrate that the current setpoints and time delays are adequate to ensure that safety-related loads have the required minimum voltage measured at the component terminal to start and operate safety-related equipment necessary to mitigate the consequences of the worst-case design basis event (DBE), without any credit for administratively controlled bus voltage levels.

The proposed modifications include replacing Startup Auxiliary Transformers (SATs), Degraded Voltage Relays (DVRs), possible replacement of 4160V breakers/switchgears, TS changes for relay set points and elimination of the TS requirement for a degraded grid alarm. This project will ensure sufficient capacity and capability of the electrical distribution system to automatically start, as well as, operate all required safety loads during undervoltage conditions.

Work scope and schedule are as follows:

2012	May	Planning Starts (in progress)
2013	June	Approve Project Plan
2014	June	Issue Purchase Orders for New SATs
2015	December	Complete Design
2015	December	Submit Technical Specification Amendment Request
2016	January	Receive New SATs
2016	September	Issuance of Technical Specification Amendments
2017	February	2R24 Outage Work – SAT(s), Cabling, Switchgear
2018	February	1R28 Outage Work – SAT(s), Cabling, Switchgear
2019	February	2R25 Outage Work – SAT(s), Cabling, Switchgear
2020	February	1R29 Outage Work – SAT(s), Cabling, Switchgear
2020	March	Complete Project Implementation

Many challenges in fully implementing the project result from the nature and complexity of the design change, which includes such factors as the protective relay scheme between the plant and switchyard, Bulletin 2012-01, "Design Vulnerability in Electric Power System" considerations, submittal and approval of Technical Specification (TS) amendments and an anticipated long lead time for large electrical equipment. These and other factors dictate the implementation schedule, which will require two outage periods of each unit's 24-month operating cycle to complete. Non-critical path work activities performed at power are not included in the above schedule.

The implementation schedule and proposed completion dates do not pose a threat to safety due to current administrative controls that will remain in place until the completion of the modifications and TS amendments occur.

This LAR includes the proposed change to HNP FOLs. A marked up copy of HNP FOLs reflecting the proposed changes are provided in Enclosure 2. A clean typed copy of HNP FOLs with changes incorporated is provided in Enclosure 3.

**Enclosure 1 to NL-12-2227
Basis for Proposed Changes**

4. Regulatory Evaluation

4.1 No Significant Hazards Consideration Determination

Southern Nuclear Operating Company (SNC) is requesting an amendment to the Hatch Nuclear Plant (HNP) Facility Operating Licenses (FOL) to implement a Degraded Voltage Protection modification. This modification is in response to an NRC Unresolved Item regarding the use of administrative controls in lieu of automatic degraded voltage protection to assure adequate voltage to safety-related equipment during design basis events. As noted in previous correspondence, the NRC acknowledges their use of the compliance exception to the backfit rule regarding their 1995 Safety Evaluation Report position. Subsequent appeals by SNC were denied.

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 change to the HNP FOL that incorporates the Degraded Voltage Protection modification implementation schedule is administrative in nature. This proposed change does not alter accident analysis assumptions, add any initiators, or affect the function of plant systems or the manner in which systems are operated, maintained, modified, tested or inspected.

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

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

Response: No.

The proposed change to the HNP FOL that incorporates the Degraded Voltage Protection modification implementation schedule is administrative in nature. This proposed change does not alter accident analysis assumptions, add any initiators, or affect the function of plant systems or the manner in which systems are operated, maintained, modified, tested or inspected.

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

**Enclosure 1 to NL-12-2227
Basis for Proposed Changes**

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

Response: No.

Plant safety margins are established through limiting conditions for operation, limiting safety system settings, and safety limits specified in the technical specifications. The proposed change to the HNP FOL is administrative in nature. Because there is no change to these established safety margins as a result of this change, the proposed change does not involve a significant reduction in a margin of safety.

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

Based on the above, SNC concludes that the proposed change presents no 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.

4.2 Applicable Regulatory Requirements/Criteria

This license amendment request is submitted to ensure compliance with applicable provisions of 10 CFR 50.55a(h)(2) and 10 CFR Part 50, Appendix A, General Design Criterion 17 – Electric Power Systems.

4.3 Conclusions

In conclusion, based on the considerations discussed above, (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 Considerations

SNC has evaluated the proposed amendment and determined that the amendment does not involve (1) a significant hazards consideration, (2) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (3) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to the 10 CFR 51.22(b), an environmental assessment of the proposed amendment is not required.

Enclosure 1 to NL-12-2227
Basis for Proposed Changes

6. References

1. Letter from J.T. Munday, U.S. Nuclear Regulatory Commission, to D.R. Madison, SNC Hatch Nuclear Plant, "Edwin I. Hatch Nuclear Plant – NRC Component Design Bases Inspection – Inspection Report 05000321/2011009 and 05000366/2011009," dated May 25, 2011.
2. Letter from M.J. Ajluni, SNC, to NRC, "Edwin I. Hatch Nuclear Plant – Units 1 and 2 Backfit for Degraded Grid Voltage Protection – Implementation of Plant Modifications," dated August 9, 2012.

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Enclosure 2

HNP Facility Operating License Markup Pages

that will be located in a seismically qualified manual transfer switch housing. The aforementioned circuit breaker and fuses shall be adequately coordinated with the upstream load center breaker over the entire range. These devices shall be adequately rated to prevent adverse effects of a fault to the rest of the distribution system.

(10) Degraded Voltage Protection
SNC shall implement the Degraded Voltage modifications to eliminate the manual actions in lieu of automatic degraded voltage protection to assure adequate voltage to safety-related equipment during design basis events by completion of the Unit 1 2020 Spring Outage, U1R29.

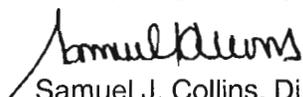
- 2) SNC shall implement modifications by May 31, 2010, as described in Enclosure 1, section 2.7.3.2, of the LAR and section 5.7 of SNC's letter dated February 25, 2008 (NL 08-0175) to modify the design for the air supply to the turbine building exhaust ventilation dampers, such that operating air to the dampers will be supplied from a non-interruptible instrument air source to eliminate single failure point vulnerability to loss of system/instrument air.
- 3) SNC shall complete actions by May 31, 2010, as described in SNC's letter dated February 25, 2008 (NL-08-0175) to install and implement the capability for Standby Liquid Control System hand switch jumpers for HNP Units 1 and 2.
- 4) SNC shall complete actions by May 31, 2012 for HNP Unit 1, as described in SNC's letters dated February 25, 2008 (NL-08-0175) and July 2, 2008 (NL-08-1022), to modify the following Main Steam Isolation Valve alternate leakage treatment boundary valves, such that they can be closed in the event of a loss of offsite power without requiring local operation:

1N38-F101A, 1N38-F101B, 1N33-F012, 1N33-F013
- 5) SNC shall implement actions by May 31, 2010, as described in SNC's letter dated February 27, 2008, to assure that temperature switches which monitor charcoal bed temperature meet the environmental qualification requirements of 10 CFR 50.49.

D. Southern Nuclear shall not market or broker power or energy from Edwin I. Hatch Nuclear Plant, Unit 1.

3. This renewed license is effective as of the date of issuance and shall expire at midnight, August 6, 2034.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION


Samuel J. Collins, Director
Office of Nuclear Reactor Regulation

Attachments:
Appendix A – Technical Specifications
Appendix B – Environmental Protection Plan

Date of Issuance: January 15, 2002

manually switched over from normally operating power supplies, to a Class - 1E circuit that will be isolated by an appropriately rated safety related, environmentally and seismically qualified circuit breaker. For further protection and isolation, the licensee shall also use fuses that will be located in a seismically qualified manual transfer switch housing. The aforementioned circuit breaker and fuses shall be adequately coordinated with the upstream load center breaker over the entire range. These devices shall be adequately rated to prevent adverse effects of a fault to the rest of the distribution system.

(h) Degraded Voltage Protection

SNC shall implement the Degraded Voltage modifications to eliminate the manual actions in lieu of automatic degraded voltage protection to assure adequate voltage to safety-related equipment during design basis events by completion of the Unit 2 2019 Spring Outage, U2R25.

- ii) SNC shall implement modifications by May 31, 2010, as described in Enclosure 1, section 2.7.3.2, of the LAR and section 5.7 of SNC's letter dated February 25, 2008, (NL 08-0175) to modify the design for the air supply to the turbine building exhaust ventilation dampers, such that operating air to the dampers will be supplied from a non-interruptible instrument air source to eliminate single failure point vulnerability to loss of system/instrument air.
- iii) SNC shall complete actions by May 31, 2010, as described in SNC's letter dated February 25, 2008 (NL-08-0175) to install and implement the capability for Standby Liquid Control System hand switch jumpers for HNP Units 1 and 2.
- iv) SNC shall complete actions by May 31, 2011, for HNP Unit 2, as described in SNC's letters dated February 25, 2008 (NL-08-0175) and July 2, 2008 (NL-08-1022), to modify the following Main Steam Isolation Valve alternate leakage treatment boundary valves, such that they can be closed in the event of a loss of offsite power without requiring local operation:

2N11-F004A, 2N11-F004B, 2N33-F003, 2N33-F004
- v) SNC shall implement actions by May 31, 2010, as described in SNC's letter dated February 27, 2008, to assure that temperature switches which monitor charcoal bed temperature meet the environmental qualification requirements of 10 CFR 50.49.

D. This renewed license is subject to the following antitrust conditions:

(1) As used herein:

- (a) "Entity" means any financially responsible person, private or public corporation, municipality, county, cooperative, association, joint stock association or business trust, owning, operating or proposing to own or operate equipment or facilities within the state of Georgia (other than Chatham, Effingham, Fannin, Towns and Union Counties) for

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Enclosure 3

HNP Facility Operating License Clean Typed Pages

that will be located in a seismically qualified manual transfer switch housing. The aforementioned circuit breaker and fuses shall be adequately coordinated with the upstream load center breaker over the entire range. These devices shall be adequately rated to prevent adverse effects of a fault to the rest of the distribution system.

- 2) SNC shall implement modifications by May 31, 2010, as described in Enclosure 1, section 2.7.3.2, of the LAR and section 5.7 of SNC's letter dated February 25, 2008 (NL 08-0175) to modify the design for the air supply to the turbine building exhaust ventilation dampers, such that operating air to the dampers will be supplied from a non-interruptible instrument air source to eliminate single failure point vulnerability to loss of system/instrument air.
- 3) SNC shall complete actions by May 31, 2010, as described in SNC's letter dated February 25, 2008 (NL-08-0175) to install and implement the capability for Standby Liquid Control System hand switch jumpers for HNP Units 1 and 2.
- 4) SNC shall complete actions by May 31, 2012 for HNP Unit 1, as described in SNC's letters dated February 25, 2008 (NL-08-0175) and July 2, 2008 (NL-08-1022), to modify the following Main Steam Isolation Valve alternate leakage treatment boundary valves, such that they can be closed in the event of a loss of offsite power without requiring local operation:

1N38-F101A, 1N38-F101B, 1N33-F012, 1N33-F013

- 5) SNC shall implement actions by May 31, 2010, as described in SNC's letter dated February 27, 2008, to assure that temperature switches which monitor charcoal bed temperature meet the environmental qualification requirements of 10 CFR 50.49.

(10) Degraded Voltage Protection

SNC shall implement the Degraded Voltage modifications to eliminate the manual actions in lieu of automatic degraded voltage protection to assure adequate voltage to safety-related equipment during design basis events by completion of the Unit 1 2020 Spring Outage, U1R29.

- D. Southern Nuclear shall not market or broker power or energy from Edwin I. Hatch Nuclear Plant, Unit 1.
3. This renewed license is effective as of the date of issuance and shall expire at midnight, August 6, 2034.

manually switched over from normally operating power supplies, to a Class - 1E circuit that will be isolated by an appropriately rated safety related, environmentally and seismically qualified circuit breaker. For further protection and isolation, the licensee shall also use fuses that will be located in a seismically qualified manual transfer switch housing. The aforementioned circuit breaker and fuses shall be adequately coordinated with the upstream load center breaker over the entire range. These devices shall be adequately rated to prevent adverse effects of a fault to the rest of the distribution system.

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- iv) SNC shall complete actions by May 31, 2011, for HNP Unit 2, as described in SNC's letters dated February 25, 2008 (NL-08-0175) and July 2, 2008 (NL-08-1022), to modify the following Main Steam Isolation Valve alternate leakage treatment boundary valves, such that they can be closed in the event of a loss of offsite power without requiring local operation:

2N11-F004A, 2N11-F004B, 2N33-F003, 2N33-F004
- v) SNC shall implement actions by May 31, 2010, as described in SNC's letter dated February 27, 2008, to assure that temperature switches which monitor charcoal bed temperature meet the environmental qualification requirements of 10 CFR 50.49.

(h) Degraded Voltage Protection

SNC shall implement the Degraded Voltage modifications to eliminate the manual actions in lieu of automatic degraded voltage protection to assure adequate voltage to safety-related equipment during design basis events by completion of the Unit 2 2019 Spring Outage, U2R25.

D. This renewed license is subject to the following antitrust conditions:

- (1) As used herein: