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919-362-2502

November 29, 2012 10 CFR 50.90
Serial: HNP-12-116

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

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400

Subject: License Amendment Request to Revise Technical Specification Table 3.3-4 Degraded Voltage Time Delay Values

References:
1. NRC Inspection Report 05000400/2011008, dated August 9, 2011.
2. Regulatory Issue Summary 2011-12, Revision 1, *Adequacy of Station Electric Distribution System Voltages*, dated December 29, 2011.

Ladies and Gentlemen:

Pursuant to 10 CFR 50.90, Carolina Power & Light Company (CP&L) requests an amendment to Operating License NPF-63 for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed amendment would revise Technical Specification Table 3.3-4 associated with 6.9 kV Emergency Bus Secondary Undervoltage (frequently referred to as degraded voltage) time delay values. This proposed change is intended to resolve a non-conservative Technical Specification identified in Reference 1, and the topic is addressed by Reference 2. This also clarifies that the HNP licensing basis will include the requirement that degraded voltage time delay setpoints must support the loss of coolant accident analysis timeline with coincident sustained degraded voltage conditions.

Approval of the proposed amendment is requested by October 1, 2013, based upon the need to perform plant modifications and testing during the fall 2013 refueling outage. Once approved, the amendment will be implemented during the refueling outage, which would be within 90 days of an October 1, 2013 approval.

This document contains no regulatory commitments.

In accordance with 10 CFR 50.91, CP&L is notifying the State of North Carolina of this License Amendment Request by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact John Caves at (919) 362-2406.

I declare, under penalty of perjury, that the foregoing is true and correct.
Executed on [November 29, 2012].

Sincerely,

George T. Hamrick

Enclosure: Evaluation of the License Amendment Request to Revise Technical Specification Table 3.3-4 Degraded Voltage Time Delay Values

cc: Mr. J. D. Austin, NRC Sr. Resident Inspector, HNP
Ms. A. T. Billoch Colón, NRC Project Manager, HNP
Mr. W. L. Cox III, Section Chief, North Carolina DENR
Mr. V. M. McCree, NRC Regional Administrator, Region II

Enclosure to HNP-12-116

Shearon Harris Nuclear Power Plant, Unit 1
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Evaluation of the License Amendment Request to Revise Technical Specification Table 3.3-4 Degraded Voltage Time Delay Values

Attachments

1. Technical Specification and Operating License Page Markups
2. Bases Page Markups (provided for information only)
3. Retyped Technical Specification and Operating License Pages

1. Summary Description

This evaluation supports a License Amendment Request (LAR) to Operating License NPF-63 for Shearon Harris Nuclear Power Plant, Unit 1 (HNP). The proposed changes would revise the Operating License Appendix A, Technical Specification (TS) Table 3.3-4 associated with 6.9 kV Emergency Bus Secondary Undervoltage (frequently and hereafter referred to as degraded voltage) time delay values to resolve a non-conservative Technical Specification. This also clarifies that the HNP licensing basis will include that degraded voltage time delay setpoints support the Loss of Coolant Accident (LOCA) analysis timeline with coincident sustained degraded voltage conditions. The adverse condition was identified in Reference 1, and the topic is addressed by Reference 2.

Approval of the proposed amendment is requested by October 1, 2013, based upon the need to perform plant modifications and testing during the fall 2013 refueling outage. Once approved, the amendment will be implemented during the refueling outage, which would be within 90 days of an October 1, 2013 approval.

2. Detailed Description

The proposed changes would revise the Operating License, Appendix A, Technical Specifications, Table 3.3-4, associated with 6.9 kV emergency bus degraded voltage time delay values. The current allowable degraded voltage time delay values exceed the maximum time delay that is evaluated in the final safety analysis report (FSAR) large break LOCA analyses.

The proposed amendment would revise the degraded voltage function in TS Table 3.3-4, Functional Unit 9 – Loss-of-Offsite Power (LOOP), 6.9 kV (kilovolt) Emergency Bus Undervoltage – Secondary. Specifically, the amendment would:

1. Revise the Allowable Value with voltage ≥ 6392 volts with a time delay ≤ 18 seconds (with Safety Injection) to ≤ 13.21 second time delay. This includes an editorial change to make the word structure of the requirement consistent with the existing verbiage of the other criteria in that section of the table.
2. Revise the Allowable Value with voltage ≥ 6392 volts with a ≤ 60 second time delay (without Safety Injection) to ≤ 59.62 second time delay.
3. Revise the Trip Setpoint with voltage ≥ 6420 volts with a ≤ 16 second time delay (with Safety Injection) to ≤ 12.88 second time delay.
4. Revise the Trip Setpoint with voltage ≥ 6420 volts with a ≤ 54 second time delay (without Safety Injection) to ≤ 57.89 second time delay.
5. Add clarifications to the functional unit descriptions such that the primary setpoints apply to loss of voltage condition and the secondary setpoints apply to degraded voltage condition.
6. Revise clarifications for the degraded voltage allowable value and trip setpoint to change “without safety injection” to “non-accident.”

HNP is developing a plant modification and also revising FSAR LOCA analyses for implementation in the upcoming refueling outage. The revised LOCA analysis will impose revised analytical limits for the degraded voltage relay (DVR) time delays to accommodate the

initiation of a sustained degraded voltage condition coincident with the reactor coolant system pipe break. The revised LOCA analysis will be evaluated in accordance with 10 CFR 50.59, *Changes, Tests, and Experiments*, following the guidance of NEI 96-07, *Guidelines for 10 CFR 50.59 Implementation*, prior to incorporation into the HNP FSAR. Consequently, the revised LOCA analysis will not require NRC approval and is therefore not within the scope of this LAR.

The plant modifications protect those revised analytical limits for the DVR time delays to shorten times from receipt of the safety injection initiation signal to initiation of emergency mitigation functions for the condition of degraded voltage conditions coincident with the RCS pipe break. Similar to the revised LOCA analysis, the plant modification will also be evaluated in accordance with 10 CFR 50.59 following the guidance of NEI 96-07 prior to incorporation into the HNP FSAR. Consequently, the plant modifications will not require NRC approval and is therefore not within the scope of this LAR.

Implementation of this LAR, in conjunction with the planned LOCA reanalyses and plant modifications will resolve the non-conservative Technical Specification.

3. Technical Evaluation

Two 6.9 kV buses (designated 1A-SA and 1B-SB) supply power to equipment essential for safe shutdown of the plant. They are provided with two sets of undervoltage (UV) protection, one is called Loss of Voltage Relaying (primary UV protection) and the other is Degraded Voltage Relaying (secondary UV protection). These UV relays monitor the voltage on these buses and separate them from offsite power based upon voltage and time delay relay settings.

The electrical power distribution system design complies with the following guidelines as recommended in BTP PSB-1:

a) A second level of undervoltage protection will provide protection for the class IE power system against a sustained degraded voltage condition on the offsite power system.

b) The undervoltage relay scheme will utilize a coincident logic (i.e. 2 out of 3 logic).

c) The vo1tage settings of the undervoltage re1ays will be consistent with the minimum permissible voltage levels at the various distribution buses.

d) The time delay associated with the undervoltage relays will be consistent with the maximum time delay considered in the design basis accident analysis and shall prevent spurious tripping due to short time transient conditions.

e) The system design and hardware selection will be consistent with the requirements of IEEE-279-1971 *Criteria for Protection System for Nuclear Power Generating Stations*.

f) A trip initiation will be provided to disconnect the offsite power sources from the safety system whenever voltage setpoints and time delay limits exceed the preset value.

The secondary undervoltage relays (27A) are connected to two distinct time delay relays. Upon expiration of the first time delay (Device 2-1), which is long enough to accommodate the starting of the motor which has the longest starting time (normal service water pump - 10 seconds at 90% voltage), an alarm is actuated at the main control board to alert the operator of this condition and to permit operator actions to restore the system voltage. Should a safety actuation signal be present after the expiration of the time delay, automatic tripping actions as described for the primary protection are initiated. This will be referred to as the short-term DVR function.

The degraded voltage condition exists when the voltage drops below the DVR setpoint but remains above the setpoint for the loss of offsite power. In the event of a coincident LOCA and degraded voltage condition, a safety injection actuation signal is generated, emergency loads begin to sequence onto the emergency buses (still powered from the normal offsite supply), and the emergency diesel generator starts but does not load. If the degraded voltage condition continues to exist until the short-term DVR time delay setting is reached, the emergency buses are then separated from offsite power, loads on emergency buses are shed, the EDG output breaker is shut, and the emergency loads are sequenced back onto the emergency buses. The LOCA analysis timeline for the safety functions provided by the equipment in this scenario is used to establish the analytical limit for the maximum short-term DVR time delay.

If degraded voltage conditions exist without a coincident accident (normal operating conditions), a longer time delay (Device 2-2) is allowed before the automatic tripping actions are initiated. This second time delay is based on the maximum time for which the most sensitive load can perform its safety function without impairment at the degraded voltage. This will be referred to as the long-term DVR function.

Calculations to determine time delay allowable values and trip setpoints to protect time delay analytical limits were performed consistent with the methodology of Technical Specification Task Force Traveler 493, *Clarify Application of Setpoint Methodology for LSSS Functions.* Although the DVR function is not a limiting safety system setting function, the methodology is a conservative approach for determination of these parameters.

The maximum short-term DVR time delay analytical limit is 13.3 seconds, which will support the design basis limiting peak cladding temperature LOCA timeline for safety functions. Uncertainties including accuracy, calibration tolerance, measurement and test equipment error, and drift contribute to a total loop uncertainty of 0.42 seconds. The maximum analytic limit of 13.3 seconds is reduced by the total loop uncertainty value of 0.42 seconds to yield the maximum trip setpoint of 12.88 seconds. The as-left tolerance, instrument drift, and measurement equipment error contribute to a group as-found tolerance of 0.33 seconds. The group as-found tolerance of 0.33 seconds is added to the maximum trip setpoint of 12.88 seconds to yield the maximum allowable value of 13.21 seconds.

The maximum long-term DVR time delay analytical limit is 60 seconds, based upon the specification that HNP motors are capable of “riding through” voltage transients of 75% of motor nameplate voltage for a minimum of 60 seconds. This ensures the most sensitive load can perform its safety function without impairment at the maximum voltage degradation that would not activate the loss of offsite power function.

The existing TS criteria for bus voltage setpoints and allowable values (6392 and 6420 kV) in the specifications with the time delays are not affected by this LAR.

Uncertainties including accuracy, calibration tolerance, measurement and test equipment error, and drift contribute to a total loop uncertainty of 2.11seconds. The maximum analytic limit of 60.0 seconds is reduced by the total loop uncertainty value of 2.11 seconds to yield the maximum trip setpoint of 57.89 seconds. The as-left tolerance, instrument drift, and measurement equipment error contribute to a group as-found tolerance of 1.73 seconds. The group as-found tolerance of 1.73 seconds is added to the maximum trip setpoint of 57.89 seconds to yield the maximum allowable value of 59.62 seconds.

HNP has not implemented Technical Specifications Task Force traveler TSTF-493 except for Reactor Trip System Instrumentation changes associated with a measurement uncertainty recapture power uprate, approved by the NRC Staff in the Safety Evaluation dated May 30, 2012 (ADAMS Accession Number ML11356A096). HNP TS format uses the terminology Trip Setpoint which is analogous to TSTF-493 and NUREG-1431 terminology of Nominal Trip Setpoint (NTSP).

Existing TS require actions analogous to TSTF-493. Limiting Condition for Operation (LCO) 3.3.2 requires Engineered Safety Features Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 to be Operable, with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4. Table 3.3-3 includes Functional Unit 9, Loss of Offsite Power, which includes (b.) 6.9 kV Emergency Bus – Undervoltage Secondary (Degraded Voltage). Note that ESFAS functions are not in the Technical Specification Limiting Safety System Settings section. TSTF-493 does not identify the degraded voltage relay setpoints in the set of ESFAS functions that require specified notes regarding as-found and as-left conditions.

As described in LCO 3.3.2, with an ESFAS trip value less conservative than the Trip Setpoint but more conservative than the Allowable Value, the setpoint as-left value must be consistent with the TS Trip Setpoint value. With an ESFAS trip value less conservative than the Allowable Value, the as-left value must either be consistent with the TS Trip Setpoint value or the channel must be declared inoperable with applicable action statements in effect.

TS Bases changes are provided in Attachment 2 for information. The bases are revised to clarify the content of this LAR meets the intent of Branch Technical Position PSB-1 regarding maximum time delays for the degraded voltage relays being consistent with design basis accident analysis.

In addition to the technical changes described above, editorial clarifications are proposed that are not intended to change the intent of the specifications but improve consistency and clarification, which reduces the burden for understanding and implementing the specifications on the plant operating staff.

The current specification for Allowable Value, “voltage $\geq$ 6392 volts with a time delay $\leq$ 18 seconds” is inconsistent with the structure of the specification for the other three parallel requirements. The change to the structure to be “with a $\leq$ 13.21 second time delay” makes the

word structure of the requirement consistent with the existing verbiage of the other criteria in that section of the table.

The proposed change adds clarifications to the functional unit descriptions such that the primary setpoints apply to loss of voltage condition and the secondary setpoints apply to degraded voltage condition. This is consistent with the common plant and industry usage of the functions.

The proposed change also revise clarifications for the degraded voltage allowable value and trip setpoint to change "without safety injection" to "non-accident" to clarify the conditions upon which the long-term values are based.

In summary, values in TS Table 3.3-4 related to degraded voltage time delays will resolve the current non-conservative TS identified in Reference 1. The proposed values meet regulatory requirements to ensure the limiting design basis LOCA accident analyses timeline are satisfied for the LOCA initiated with a coincident degraded voltage condition. The methodology employed to protect the analytic limit by calculating trip setpoints and allowable values are conservative and appropriate for the application. Information provided herein supports the technical merit of the proposed change.

4. Regulatory Evaluation

During an NRC Component Design Basis Inspection documented in NRC Inspection Report 05000400/2011008 (Reference 1), inspectors identified a Green, non-cited violation with two examples of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for HNP's failure to properly control degraded voltage time delay setpoints. Specifically, NRC inspectors noted that HNP had not analyzed whether electrical equipment needed to respond to an accident would be energized by the emergency diesel generators within the time considered in the accident analysis if a degraded voltage condition existed concurrent with an accident.

Subsequent to the inspection, NRC staff published Reference 2, where similar conditions were described in examples for Fermi Unit 2 and Peach Bottom Atomic Power Station Units 2 and 3. In those examples also, the limiting LOCA timeline was not supported with existing degraded voltage time delay settings.

Similar to examples described in Reference 2, HNP presented information to inspectors indicating the need for the time delay to support the LOCA analysis timeline was not in the current licensing basis. Unlike some of the examples in Reference 2, HNP did not contest the violation and committed to resolving the issue rather than pursuing a backfit analysis. This license amendment request clarifies the HNP licensing basis that degraded voltage setpoints support the LOCA analysis timeline, considering initiation of the accident coincident with sustained degraded voltage conditions.

The condition was entered into the HNP Corrective Action Program. HNP confirmed, using alternate analytical methods, that the field conditions supported operability. However, the TS Allowable Values were not sufficiently conservative to confirm that field settings at all values allowed by TS would support safety system functions to mitigate accidents in accordance with

FSAR accident analyses. The non-conservative TS is treated as a degraded/non-conforming condition in the HNP Corrective Action Program.

4.1. Applicable Regulatory Requirements/Criteria

Part 50 of Title 10 of the Code of Federal Regulations (10 CFR 50), Appendix A, General Design Criterion (GDC) 17, "Electric power systems," requires that 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 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 loss of power instrumentation settings and control assures proper operation of safety-related loads as required by GDC 17 of 10 CFR Part 50, Appendix A.

Part 50 of Title 10 of the Code of Federal Regulations, Section 36 (10 CFR 50.36), "Technical Specifications," requires that "each applicant for a license authorizing operation of a production or utilization facility shall include in his application proposed technical specifications in accordance with the requirements of this section." Furthermore, 10 CFR 50.36(c)(3) states, "Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions of operation will be met."

GDC 13, "Instrumentation and Control," requires that instrumentation be provided to monitor variables and systems and that controls be provided to maintain these variables and systems within prescribed operating ranges.

GDC 20, "Protection System Functions," requires that the protection system be designed to initiate the operation of appropriate systems to ensure that specified acceptable fuel design limits are not exceeded.

Regulatory Guide (RG) 1.105, "Setpoints for Safety-Related Instrumentation," Revision 3, describes a method that the NRC staff finds acceptable for use in complying with the NRC's regulations for ensuring that setpoints for safety-related instrumentation are initially within, and will remain within, the TS limits. RG 1.105 endorses Part I of Instrument Society of America-S67.04-1994, "Setpoints for Nuclear Safety Instrumentation," subject to NRC staff clarifications.

Technical Specification Task Force Traveler 493, “Clarify application of Setpoint Methodology for LSSS Functions” identifies the specific functions to which the notes regarding as-found and as-left conditions must be applied. TSTF-493, the Westinghouse Owner’s Group section, page 60, lists the Auxiliary Feedwater, Loss of Offsite Power time delay function which would be within the scope of the TSTF, but not the degraded voltage functions.

Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800), Branch Technical Position (BTP) 8-6, March 2007 (similar to the previous BTP PSB-1, July 1981) "Adequacy of Station Electric Distribution System Voltages," states that the TS should include limiting conditions for operations, surveillance requirements, trip setpoints,

and maximum and minimum allowable values for the first level of undervoltage protection (loss of offsite power) relays and the second level (degraded voltage) protection sensors and associated time delay devices.

Regulatory criteria related to the original licensing of HNP are contained in NUREG-0800, Standard Review Plan, Appendix 8-A, Branch Technical Positions (BTP), Power Systems Branch (PSB), PSB-1, Adequacy of Station Electric Distribution System Voltages, dated July 1981. The following aspects of BTP PSB-1 are relevant to this LAR:

1. In addition to the undervoltage scheme provided to detect loss of offsite power at the Class 1E buses, a second level of undervoltage protection with time delay should also be provided to protect the Class 1E equipment; this second level of undervoltage protection shall satisfy the following criteria:
    b) Two separate time delays shall be selected for the second level of undervoltage protection based on the following conditions:
        1) The first time delay should be of a duration that established the existence of a sustained degraded voltage condition (i.e., something longer than a motor starting transient). Following this delay, an alarm in the control room should alert the operator to the degraded condition. The subsequent occurrence of a safety injection actuation signal (SIAS) should immediately separate the Class 1E distribution system from the offsite power system,
        2) The second time delay should be of a limited duration such that the permanently connected Class 1E loads will not be damaged. Following this delay, if the operator has failed to restore adequate voltages, the Class 1E distribution system should be automatically separated from the offsite power system. Bases and justification must be provided in support of the actual delay chosen.

The topic was also discussed in Regulatory Issue Summary 2011-12, Reference 2. Although the RIS does not transmit new requirements or staff positions, it was intended to clarify staff technical position related, in part, to bases for degraded voltage relaying settings. Relevant aspects of the clarification from the RIS include:

> *These DVRs should disconnect the Class 1E buses from any power source other than the emergency diesel generators (onsite sources) if the degraded voltage condition exists for a time interval that could prevent the Class 1E safety-related loads from achieving their safety function.*
>
> > *Note: Upon the onset of the coincident accident and degraded grid event, the time delay for the DVR circuit must allow for separation of the 1E buses from the offsite circuit(s) and connection to the 1E onsite supplies in time to support safety system functions to mitigate the accident in accordance with the FSAR accident analyses.*
>
> *The DVRs should also prevent prolonged operation of Class 1E safety-related loads at degraded voltage, which could result in equipment damage.*

4.2. Precedent

The proposed change is similar to a license amendment issued to Fermi (ML102770382). The use of the Fermi amendment was suggested by NRC staff following a pre-submittal call on this subject on October 2, 2012. However, the FERMI TS format is different from the HNP TS format, and the scope of this proposed change is limited to the degraded voltage time-delay relay settings. Aspects of the Fermi amendment scope not relevant to this request are numerous, so the comparison below is limited to the aspects within the scope of this amendment.

Fermi	**Harris**
1. The change added new time delay logic associated with degraded voltage coincident with a loss-of-coolant accident to address issues discussed in an NRC Inspection Report	1. The change revises existing time delay logic values associated with degraded voltage to become consistent with a loss of coolant accident to address issues discussed in an NRC Inspection Report
2. TS format	2. HNP TS format is not consistent with that of Fermi. Proposed changes maintain the existing format to avoid burden on station personnel responsible for implementation of the TSs. A notable difference is that Fermi TS includes both maximum and minimum time delay settings, whereas HNP has only maximum time delays. Minimum time delays are calculated and included in plant documentation and surveillance test procedures, but are outside the scope of the proposed change.
3. The Fermi TS annotates the time delay associated with a coincident LOCA as "with LOCA"	3. HNP currently annotates the time delay with a coincident LOCA as "with Safety Injection." HNP will keep the current terminology because (1) the logic uses presence of a safety injection signal as the logic condition that a LOCA has occurred, and (2) revising the words to be consistent with Fermi adds little value. TS bases changes are included to clarify that the basis of the requirement is to support degraded voltage coincident with a loss-of-coolant accident.

Fermi	Harris
4. Fermi was driven to the LAR though a backfit imposed by the NRC.	4. Although HNP also contended to NRC inspectors that the condition was beyond the current licensing basis, HNP did not contest the violation, based upon the intent to align with the staff position that supporting degraded voltage coincident with a loss-of-coolant accident is required. This LAR clearly incorporates degraded voltage coincident with a loss-of-coolant accident into the HNP licensing basis.
5. Fermi did not originally describe the development of as-found values as well as as-left values.	5. This LAR describes the process for development of as-found and as left values using methodology endorsed by TSTF-493. Calculations will be made available for audit.
6. The Fermi value chosen for the short-term time delay setting was less than the 10 seconds for emergency diesel generator loading associated with a LOOP/LOCA.	6. HNP justified a short-term time delay setting that is longer than the 10 seconds for EDG loading associated with a LOOP/LOCA, however the HNP values continue to support the LOCA accident analysis timeline and provide additional margin to unnecessary actuations due to less significant degraded voltage conditions or motor start transients.
7. Additional emergent issues resulted in revisions and scope addition to the original Fermi submittal	7. N/A

4.3. No Significant Hazards Consideration Determination

The proposed amendment would revise the degraded voltage time delay values in Technical Specification Table 3.3-4. In conjunction with planned plant modifications and reanalysis of the final safety analysis design basis large break loss of coolant accident, the revisions would resolve a non-conservative technical specification.

CP&L has evaluated whether or not a significant hazard is involved with the proposed changes by focusing on the three standards set forth in 10 CFR 50.92 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 revises the Technical Specifications (TS) Table 3.3-4, Functional Unit 9.b. Loss of Offsite Power, 6.9 kV (kilovolt) Emergency Bus Undervoltage – Secondary time delay values. The Loss of Offsite Power, 6.9 kV

(kilovolt) Emergency Bus Undervoltage – Secondary instrumentation functions are not initiators to any accident previously evaluated. As such, the probability of an accident previously evaluated is not increased. The revised values continue to provide reasonable assurance that the Loss of Offsite Power, 6.9 kV (kilovolt) Emergency Bus Undervoltage – Secondary function will continue to perform its intended safety functions. As a result, the proposed change will not increase the consequences of an accident previously evaluated.

Concurrent with this proposed change, the Harris Nuclear Plant is revising its large break loss of coolant accident analysis. The revised analysis will be evaluated in accordance with 10 CFR 50.59 to confirm that a change to the technical specifications incorporated in the license is not required, and the change does not meet any of the criteria in paragraph (c)(2) of that regulation. The revised analysis will employ the plant-specific methodology ANP-3011(P), Harris Nuclear Plant Unit 1 Realistic Large Break LOCA Analysis, Revision 1, as approved by NRC Safety Evaluation dated May 30, 2012.

Therefore, the 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 revises the Technical Specifications (TS) Table 3.3-4, Functional Unit 9.b. Loss of Offsite Power, 6.9 kV (kilovolt) Emergency Bus Undervoltage – Secondary time delay values. No new operational conditions beyond those currently allowed are introduced. This change is consistent with the safety analyses assumptions and current plant operating practices. This simply corrects the setpoint consistent with the accident analyses and therefore cannot create the possibility of a new or different kind of accident from any previously evaluated accident.

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

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

Response: No.

The proposed change revises the Technical Specifications (TS) Table 3.3-4, Functional Unit 9.b. Loss of Offsite Power, 6.9 kV (kilovolt) Emergency Bus Undervoltage – Secondary time delay values. This proposed change implements a reduced time delay to isolate safety buses from offsite power if a Loss of Coolant Accident were to occur coincident with a sustained degraded voltage condition. This provides improved margin to ensure that emergency core cooling system pumps

inject water into the reactor vessel within the time assumed and evaluated in the accident analysis.

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

Based upon the above, CP&L concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92, and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4. 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 Consideration

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in 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 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6. References

1. NRC Inspection Report 05000400/2011008, dated August 9, 2011.
2. Regulatory Issue Summary 2011-12, Revision 1, *Adequacy of Station Electric Distribution System Voltages*, dated December 29, 2011.

Enclosure to HNP-12-116

Shearon Harris Nuclear Power Plant, Unit 1
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Evaluation of the License Amendment Request to Revise Technical Specification Table 3.3-4 Degraded Voltage Time Delay Values

Attachment 1
Technical Specification and Operating License Page Markups
(6 pages plus cover)

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

(1) Maximum Power Level

Delete

Carolina Power & Light Company is authorized to operate the facility at reactor core power levels not in excess of 2948 megawatts thermal (100 percent rated core power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

Delete

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. ~~139~~, are hereby incorporated into this license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Antitrust Conditions

Carolina Power & Light Company shall comply with the antitrust conditions delineated in Appendix C to this license.

(4) Initial Startup Test Program (Section 14)[1]

Any changes to the Initial Test Program described in Section 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

(5) Steam Generator Tube Rupture (Section 15.6.3)

Prior to startup following the first refueling outage, Carolina Power & Light Company shall submit for NRC review and receive approval if a steam generator tube rupture analysis, including the assumed operator actions, which demonstrates that the consequences of the design basis steam generator tube rupture event for the Shearon Harris Nuclear Power Plant are less than the acceptance criteria specified in the Standard Review Plan, NUREG-0800, at '15.6.3 Subparts II(1) and (2) for calculated doses from radiological releases. In preparing their analysis Carolina Power & Light Company will not assume that operators will complete corrective actions within the first thirty minutes after a steam generator tube rupture.

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[1]The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

3/4.3.2 ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

No changes this page -- included for information only

LIMITING CONDITION FOR OPERATION

3.3.2 The Engineered Safety Features Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their Trip Setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4.

APPLICABILITY: As shown in Table 3.3-3.

ACTION:

a. With an ESFAS Instrumentation or Interlock Trip Setpoint trip less conservative than the value shown in the Trip Setpoint column but more conservative than the value shown in the Allowable Value column of Table 3.3-4, adjust the Setpoint consistent with the Trip Setpoint value.

b. With an ESFAS Instrumentation or Interlock Trip Setpoint less conservative than the value shown in the Allowable Value column of Table 3.3-4, either:

1. Adjust the Setpoint consistent with the Trip Setpoint value of Table 3.3-4, and determine within 12 hours that Equation 3.3-1 was satisfied for the affected channel, or

2. Declare the channel inoperable and apply the applicable ACTION statement requirements of Table 3.3-3 until the channel is restored to OPERABLE status with its Setpoint adjusted consistent with the Trip Setpoint value.

Equation 3.3-1 $Z + R + S \leq TA$

Where:

Z = The value from Column Z of Table 3.3-4 for the affected channel,

R = The "as measured" value (in percent span) of rack error for the affected channel,

S = Either the "as measured" value (in percent span) of the sensor error, or the value from Column S (Sensor Error) of Table 3.3-4 for the affected channel, and

TA = The value from Column TA (Total Allowance) of Table 3.3-4 for the affected channel.

c. With an ESFAS instrumentation channel or interlock inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

4.3.2.1 Each ESFAS instrumentation channel and interlock and the automatic actuation logic and relays shall be demonstrated OPERABLE by performance of the ESFAS Instrumentation Surveillance Requirements specified in Table 4.3-2.

4.3.2.2 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be verified to be within its limit specified in the Technical Specification Equipment List Program, plant procedure PLP-106, at least once per 18 months. Each verification shall include at least one train such that both trains are verified at least once per 36 months and one channel per function such that all channels are verified at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" column of Table 3.3-3.

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TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8. Containment Spray Switch-over to Containment Sump (Continued)					
b. RWST--Low Low	See Item 7.b. above for all RWST--Low Low initiating functions and requirements.				
Coincident With Containment Spray	See Item 2 above for all Containment Spray initiating functions and requirements.				
9. Loss-of-Offsite Power					
a. 6.9 kV Emergency Bus--Undervoltage Primary	3/bus	2/bus	2/bus	1, 2, 3, 4	15a*
b. 6.9 kV Emergency Bus--Undervoltage Secondary	3/bus	2/bus	2/bus	1, 2, 3, 4	15a*
10. Engineered Safety Features Actuation System Interlocks					
a. Pressurizer Pressure, P-11	3	2	2	1, 2, 3	20
Not P-11	3	2	2	1, 2, 3	20
b. Low-Low T_{avg}, P-12	3	2	2	1, 2, 3	20
c. Reactor Trip, P-4	2	2	2	1, 2, 3	22
d. Steam Generator Water Level, P-14	See Item 5.b. above for all P-14 initiating functions and requirements.				

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TABLE 3.3-3 (Continued)

TABLE NOTATIONS

*The provisions of Specification 3.0.4 are not applicable.

#Trip function may be blocked in this MODE below the P-11 (Pressurizer Pressure Interlock) Setpoint.

**During CORE ALTERATIONS or movement of irradiated fuel in containment, refer to Specification 3.9.9.

***Trip function automatically blocked above P-11 and may be blocked below P-11 when Safety Injection on low steam line pressure is not blocked.

ACTION STATEMENTS

ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 6 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1, provided the other channel is OPERABLE.

ACTION 15 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL OPERATIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

ACTION 15a - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the tripped condition within 1 hour. With less than the minimum channels OPERABLE, operation may proceed provided the minimum number of channels is restored within one hour, otherwise declare the affected diesel generator inoperable. When performing surveillance testing of either primary or secondary undervoltage relays, the redundant emergency bus and associated primary and secondary relays shall be OPERABLE.

ACTION 16 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition within 6 hours and the Minimum Channels OPERABLE requirement is met. One additional channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.2.1.

ACTION 17 - With less than the Minimum Channels OPERABLE requirement, operation may continue provided the Containment Purge Makeup and Exhaust Isolation valves are maintained closed while in MODES 1, 2, 3 and 4 (refer to Specification 3.6.1.7). For MODE 6, refer to Specification 3.9.4.

ACTION 18 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

(Loss of Voltage)

13.21 second time delay

add

12.88

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
9. Loss-of-Offsite Power					
a. 6.9 kV Emergency Bus Undervoltage--Primary	N.A.	N.A.	N.A.	≥ 4830 volts with a ≤ 1.0 second time delay.	≥ 4692 volts with a time delay ≤ 1.5 seconds
b. 6.9 kV Emergency Bus Undervoltage--Secondary	N.A.	N.A.	N.A.	≥ 6420 volts with a ≤ ~~16~~ second time delay (with Safety Injection).	≥ 6392 volts with a ~~time delay~~ ≤ ~~18~~ ~~seconds~~ (with Safety Injection).
				≥ 6420 volts with a ≤ ~~54.0~~ second time delay (~~without Safety Injection~~).	≥ 6392 volts with a ≤ ~~60~~ second time delay (~~without Safety Injection~~).
10. Engineered Safety Features Actuation System Interlocks					
a. Pressurizer Pressure, P-11	N.A.	N.A.	N.A.	≥ 2000 psig	≥ 1988 psig
Not P-11	N.A.	N.A.	N.A.	≤ 2000 psig	≤ 2012 psig
b. Low-Low T_{avg}, P-12	N.A.	N.A.	N.A.	≥ 553°F	≥ 549.3°F

(Degraded Voltage)

57.89

59.62

Delete

non-accident

non-accident

Delete

Enclosure to HNP-12-116

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400

Evaluation of the License Amendment Request to
Revise Technical Specification Table 3.3-4
Degraded Voltage Time Delay Values

Attachment 2
Bases Page Markups (provided for information only)
(5 pages plus cover)

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BASES

3/4.3.1 AND 3/4.3.2 REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

The OPERABILITY of the Reactor Trip System and the Engineered Safety Features Actuation System instrumentation and interlocks ensures that: (1) the associated ACTION and/or Reactor trip will be initiated when the parameter monitored by each channel or combination thereof reaches its Setpoint (2) the specified coincidence logic and sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance consistent with maintaining an appropriate level of reliability of the Reactor Trip System and Engineered Safety Features Actuation System instrumentation, and (3) sufficient system functional capability is available from diverse parameters.

The OPERABILITY of these systems is required to provide the overall reliability, redundancy, and diversity assumed available in the facility design for the protection and mitigation of accident and transient conditions. The integrated operation of each of these systems is consistent with the assumptions used in the safety analyses. The Surveillance Requirements specified for these systems ensure that the overall system functional capability is maintained comparable to the original design standards. The periodic surveillance tests performed at the minimum frequencies are sufficient to demonstrate this capability. Specified surveillance intervals and surveillance and maintenance outage times have been determined in accordance with WCAP-10271, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," and supplements to that report as approved by the NRC and documented in the SERs and SSER (letters to J. J. Sheppard from Cecil O. Thomas dated February 21, 1985; Roger A. Newton from Charles E. Rossi dated February 22, 1989; and Gerard T. Goering from Charles E. Rossi dated April 30, 1990).

The Engineered Safety Features Actuation System Instrumentation Trip Setpoints specified in Table 3.3-4 are the nominal values at which the bistables are set for each functional unit. A Setpoint is considered to be adjusted consistent with the nominal value when the "as measured" Setpoint is within the band allowed for calibration accuracy. For example, if a bistable has a trip setpoint of $\leq$100%, a span of 125%, and a calibration accuracy of $\pm$0.50%, then the bistable is considered to be adjusted to the trip setpoint as long as the "as measured" value for the bistable is $\leq$100.62%.

To accommodate the instrument drift assumed to occur between operational tests and the accuracy to which Setpoints can be measured and calibrated, Allowable Values for the Setpoints have been specified in Table 3.3-4. Operation with Setpoints less conservative than the Trip Setpoint but within the Allowable Value is acceptable since an allowance has been made in the safety analysis to accommodate this error. An optional provision has been included for determining the OPERABILITY of a channel when its Trip Setpoint is found to exceed the Allowable Value. The methodology of this option utilizes the "as measured" deviation from the specified calibration point for rack and sensor components in conjunction with a statistical combination of the other uncertainties of the instrumentation to measure the process variable and the uncertainties in calibrating the instrumentation. In Equation 3.3-1,

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BASES

REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

$Z + R + S \leq TA$, the interactive effects of the errors in the rack and the sensor, and the "as measured" values of the errors are considered. Z, as specified in Table 3.3-4, in percent span, is the statistical summation of errors assumed in the analysis excluding those associated with the sensor and rack drift and the accuracy of their measurement. TA or Total Allowance is the difference, in percent span, between the trip setpoint and the value used in the analysis for the actuation. R or Rack Error is the "as measured" deviation, in the percent span, for the affected channel from the specified Trip Setpoint. S or Sensor Error is either the "as measured" deviation of the sensor from its calibration point or the value specified in Table 3.3-4, in percent span, from the analysis assumptions. Use of Equation 3.3-1 allows for a sensor draft factor, an increased rack drift factor, and provides a threshold value for determination of OPERABILITY.

The methodology to derive the Trip Setpoints is based upon combining all of the uncertainties in the channels. Inherent to the determination of the Trip Setpoints are the magnitudes of these channel uncertainties. Sensor and rack instrumentation utilized in these channels are expected to be capable of operating within the allowances of these uncertainty magnitudes. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Being that there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift, in excess of the allowance that is more than occasional, may be indicative of more serious problems and should warrant further investigation.

The measurement of response time at the specified frequencies provides assurance that the reactor trip and the Engineered Safety Features actuation associated with each channel is completed within the time limit assumed in the safety analyses. No credit was taken in the analyses for those channels with response times indicated as not applicable. Response time may be demonstrated by any series of sequential, overlapping, or total channel test measurements provided that such tests demonstrate the total channel response time as defined. Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements; or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise or power interrupt tests); (2) inplace, onsite, or offsite (e.g., vendor) test measurements; or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Rev. 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP 14036-P-A, Rev. 1, "Elimination of Periodic Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component into operational service and re-verified following maintenance or modification that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for the repair are the same type and value. Specific components identified in the WCAP may be replaced without verification testing. One example where response time could be affected is replacing the sensing element of a transmitter.

REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

The Engineered Safety Features Actuation System senses selected plant parameters and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents events, and transients. Once the required logic combination is completed, the system sends actuation signals to those Engineered Safety Features components whose aggregate function best serves the requirements of the condition. As an example, the following actions may be initiated by the Engineered Safety Features Actuation System to mitigate the consequences of a steam line break or loss-of-coolant accident: (1) charging/safety injection pumps start and automatic valves position, (2) reactor trip, (3) feedwater isolation, (4) startup of the emergency diesel generators, (5) containment spray pumps start and automatic valves position (6) containment isolation, (7) steam line isolation, (8) turbine trip, (9) auxiliary feedwater pumps start and automatic valves position, (10) containment fan coolers start and automatic valves position, (11) emergency service water pumps start and automatic valves position, and (12) control room isolation and emergency filtration start.

Insert 1

Bases Insert 1:

Table 3.3-4 includes values for 6.9 kV Emergency Bus Undervoltage - Secondary (degraded grid) trip setpoints and allowable values. The secondary undervoltage relays are connected to two distinct time delay relays. Upon expiration of the first time delay, which is long enough to accommodate the starting of the motor which has the longest starting time, an alarm is actuated at the main control board to alert the operator of this condition and to permit operator actions to restore the system voltage. Automatic tripping actions as described for the primary protection are initiated if a safety actuation signal is present after the expiration of the time delay.

In the event of a coincident large break loss of coolant accident (LBLOCA) and voltage dropping to actuate the short-term DVR function (bus voltage drops into the range between the DVR dropout voltage setting and the loss of offsite power voltage setpoint), a safety injection actuation signal is generated, emergency loads begin to sequence onto the emergency buses (still powered from the normal offsite supply), and the emergency diesel generator starts but does not load. If the degraded voltage condition continues to exist until the short-term DVR time delay setting is reached, the emergency loads are then separated from offsite power, loads on emergency buses are shed, the emergency diesel generator output breaker is shut, and the emergency loads are sequenced back onto the emergency buses. The LBLOCA analysis timeline for the safety functions provided by the equipment in this scenario is used to establish the analytical limit for the maximum short-term DVR time delay. This meets the intent of Branch Technical Position PSB-1 regarding maximum time delays consistent with design basis accident analysis.

If degraded voltage conditions exist without a simultaneous accident (normal operating conditions), a longer time delay (Device 2-2) is allowed before the automatic tripping actions are initiated. This second time delay is based on the maximum time for which the most sensitive load can perform its safety function without impairment at the degraded voltage.

Calculations to determine time delay allowable values and trip setpoints to protect time delay analytical limits were performed consistent with the methodology of Technical Specification Task Force Traveler 493, *Clarify Application of Setpoint Methodology for LSSS Functions.* Although the DVR function is not a limiting safety system setting function, the methodology is a conservative approach for determination of these parameters.

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REACTOR TRIP SYSTEM INSTRUMENTATION AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION (Continued)

The Engineered Safety Features Actuation System interlocks perform the following functions:

P-4 Reactor tripped - Actuates Turbine trip, closes main feedwater valves on T_{avg} below Setpoint, prevents the opening of the main feedwater valves which were closed by a Safety Injection or High Steam Generator Water Level signal, allows Safety Injection block so that components can be reset or tripped.

Reactor not tripped - prevents manual block of Safety Injection.

P-11 On increasing pressurizer pressure, P-11 automatically reinstates Safety Injection actuation on low pressurizer pressure and low steam-line pressure, sends an open signal to the accumulator discharge valves and automatically blocks steam-line isolation on a high rate of decrease in steam-line pressure. On decreasing pressurizer pressure, P-11 allows the manual block of Safety Injection on low pressurizer pressure and low steam-line pressure and allows steam-line isolation, on a high rate of decrease in steam-line pressure, to become active upon manual block of Safety Injection from low steam-line pressure.

P-12 P-12 has no ESF or reactor trip functions. On decreasing reactor coolant loop temperature, P-12 automatically removes the arming signal from the Steam Dump System.

P-14 On increasing steam generator water level, P-14 automatically trips all feedwater isolation valves and inhibits feedwater control valve modulation.

3/4.3.3 MONITORING INSTRUMENTATION

3/4.3.3.1 RADIATION MONITORING FOR PLANT OPERATIONS

The OPERABILITY of the radiation monitoring instrumentation for plant operations ensures that: (1) the associated action will be initiated when the radiation level monitored by each channel or combination thereof reaches its setpoint, (2) the specified coincidence logic is maintained, and (3) sufficient redundancy is maintained to permit a channel to be out-of-service for testing or maintenance. The radiation monitors for plant operations senses radiation levels in selected plant systems and locations and determines whether or not predetermined limits are being exceeded. If they are, the signals are combined into logic matrices sensitive to combinations indicative of various accidents and abnormal conditions. Once the required logic combination is completed, the system sends actuation signals to initiate alarms or automatic isolation action and actuation of emergency systems.

Enclosure to HNP-12-116

Shearon Harris Nuclear Power Plant, Unit 1
Docket No. 50-400

Evaluation of the License Amendment Request to
Revise Technical Specification Table 3.3-4
Degraded Voltage Time Delay Values

Attachment 3
Retyped Technical Specification and Operating License Pages
(2 pages plus cover)

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

(1) Maximum Power Level

Carolina Power & Light Company is authorized to operate the facility at reactor core power levels not in excess of 2948 megawatts thermal (100 percent rated core power) in accordance with the conditions specified herein.

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, as revised through Amendment No. , are hereby incorporated into this license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

(3) Antitrust Conditions

Carolina Power & Light Company shall comply with the antitrust conditions delineated in Appendix C to this license.

(4) Initial Startup Test Program (Section 14)[1]

Any changes to the Initial Test Program described in Section 14 of the FSAR made in accordance with the provisions of 10 CFR 50.59 shall be reported in accordance with 50.59(b) within one month of such change.

(5) Steam Generator Tube Rupture (Section 15.6.3)

Prior to startup following the first refueling outage, Carolina Power & Light Company shall submit for NRC review and receive approval if a steam generator tube rupture analysis, including the assumed operator actions, which demonstrates that the consequences of the design basis steam generator tube rupture event for the Shearon Harris Nuclear Power Plant are less than the acceptance criteria specified in the Standard Review Plan, NUREG-0800, at '15.6.3 Subparts II(1) and (2) for calculated doses from radiological releases. In preparing their analysis Carolina Power & Light Company will not assume that operators will complete corrective actions within the first thirty minutes after a steam generator tube rupture.

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[1]The parenthetical notation following the title of many license conditions denotes the section of the Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

FUNCTIONAL UNIT	TOTAL ALLOWANCE (TA)	Z	SENSOR ERROR (S)	TRIP SETPOINT	ALLOWABLE VALUE
9. Loss of Offsite Power					
a. 6.9 kV Emergency Bus Undervoltage – Primary (Loss of Voltage)	N.A.	N.A.	N.A.	≥ 4830 volts with a ≤ 1.0 second time delay	≥ 4692 volts with a time delay ≤ 1.5 seconds
b. 6.9 kV Emergency Bus Undervoltage – Secondary (Degraded Voltage)	N.A.	N.A.	N.A.	≥ 6420 volts with a ≤ 12.88 second time delay (with Safety Injection).	≥ 6392 volts with a ≤ 13.21 second time delay (with Safety Injection).
				≥ 6420 volts with a ≤ 57.89 second time delay (non-accident).	≥ 6392 volts with a ≤ 59.62 second time delay (non-accident).
10. Engineered Safety Features Actuation System Interlocks					
a. Pressurizer Pressure,					
P-11	N.A.	N.A.	N.A.	≥ 2000 psig	≥ 1988 psig
Not P-11	N.A.	N.A.	N.A.	≤ 2000 psig	≤ 2012 psig
b. Low Low T_{avg}, P-12	N.A.	N.A.	N.A.	≥ 553°F	≥ 549.3°F