

UNITED STATES NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-400

1.0 INTRODUCTION

By letter dated April 24, 1998, Carolina Power & Light (the licensee) proposed a change to the Shearon Harris Nuclear Power Plant (SHNPP) Technical Specifications (TS). The licensee proposed to revise Table 3.3-3 of TS 3.3.2, "Engineered Safety Features Actuation System Instrumentation" to allow a 2 hour surveillance interval to facilitate testing of the 6.9 kV emergency bus undervoltage relays. The licensee indicated that the change was necessary to prevent a potential shutdown of SHNPP per the requirements of TS 3.0.3 during the testing of the undervoltage relays which is required on a 31-day frequency.

By letter dated May 15, 1998, following discussions with the NRC staff, the licensee supplemented its original request by submitting a proposed TS change which accomplishes the intent of the original proposal, avoiding a shutdown per TS 3.0.3, but also reflects more closely the generic TS wording contained in the Improved Standard Technical Specifications (ISTS) for Westinghouse plants (NUREG 1431, Revision 1). Rather than allowing a separate 2-hour surveillance interval, the revised change would require that the affected diesel generator be declared inoperable within one hour of operation with less than the minimum channels operable. The licensee notes that the SHNPP design utilizes six undervoltage relay channels per bus to start the auxiliary feedwater (AFW) pumps, whereas the ISTS requires three channels per bus for the AFW function. Therefore, the licensee has not proposed immediately converting the AFW Loss of Offsite Power portion of the undervoltage relays specification to ISTS.

2.0 EVALUATION

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The SHNPP 6.9 kV electrical emergency buses, 1A-SA and 1B-SB, are each equipped with three primary (loss of power) and three secondary (degraded voltage) undervoltage relays. An undervoltage condition on either bus, sensed by these undervoltage relays (two-out-of-three logic) causes shedding of all loads on the applicable bus, automatic starting of the emergency diesel generator (EDG), and automatic starting of the turbine-driven AFW pump. When the EDG has attained rated speed and voltage, the EDG circuit breaker to the 6.9 kV bus is automatically closed and the safety-related loads are connected to the bus by the emergency load sequencer.

The SHNPP TS Table 4.3-2, items 9.a and 9.b, which address the EDG function, require that a trip actuating device operational test (TADOT) be performed on the undervoltage relays every 31 days. On January 10, 1996, the staff issued Generic Letter 96-01 requesting that licensees , compare electrical schematic drawings and logic diagrams for the reactor protection system,

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EDG load shedding and sequencing, and actuation logic for the engineered safety features systems against plant surveillance test procedures to ensure that all portions of the logic circuitry are adequately covered in the surveillance procedures to fulfill the TS requirements. In response to this generic letter the licensee identified in licensee event report (LER) 96-002 that surveillance testing had not been performed to verify proper operation of the 6.9kV emergency bus secondary undervoltage relays during the monthly TADOT. The licensee revised the test procedure to adequately test the secondary relays. To perform the revised test, the primary undervoltage relays are rendered inoperable, and for brief portions of the revised test, the primary and secondary relays are rendered inoperable concurrently.

The 6.9kV emergency bus primary and secondary undervoltage relay design incorporates a unique test feature utilizing a test push-button that tests both the primary and secondary relays on one emergency bus at the same time. Because both sets of relays are actuated simultaneously during this test, and either set of relays can actuate the undervoltage lockout relay, the original test procedure did not verify that the secondary relays were capable of independently energizing the lockout relay within the required timeframe. The revised procedure corrected this problem by lifting a lead that deenergized a portion of the primary relay control circuit so that when the test push-button is pressed only the secondary relays could energize the undervoltage lockout relay. A temporary switch is wired in and another lead is lifted during the secondary relay TADOT to simulate a safety injection signal in order to verify proper actuation and time delay of the secondary relays associated with that signal (the secondary relays have separate time delays for loss-of-coolant accidents (LOCA) and non-LOCA conditions).

Items 9.a and 9.b in Table 3.3-3 of the current SHNPP TS 3.3.2 addresses the EDG function of the relays and references an action statement (Action Statement 15) that only provides required actions for the inoperability of one channel of primary or secondary undervoltage relays per emergency bus. (The AFW loss of offsite power function, Item 6.e of Table 3.3-3, which is also performed by these same relays simply references the EDG function, Item 9, for its requirements.) Because the new TADOT described above disables all three channels of primary undervoltage relays per emergency bus in preparation for the secondary undervoltage relay test, SHNPP TS 3.0.3 would require that the plant begin to shutdown within one hour of disabling those relays. TS 3.0.3 requires the plant shut down within one hour when a limiting condition for operation is not met and there is no action statement associated with the inoperability. In addition to the period of time that the primary relays are made inoperable due to deenergization of their control circuit, both the primary and secondary relays are also concurrently made inoperable for the period of time that the test push-button is held in and the test relay is energized (approximately 2 seconds, 16 seconds, and 54 seconds).

As a result of the above, the licensee proposed a new action statement (Action Statement 15a) applicable to Items 9.a (primary undervoltage relays) and 9.b (secondary undervoltage relays) in Table 3.3-3 of the SHNPP TS. The new action statement is also applicable to the AFW loss of offsite power function specified in Item 6.e because Item 6.e references Item 9 for its requirements. The new action statement, 15a, similar to the old action statement, requires that an inoperable channel be placed in the tripped condition within 1 hour with the number of operable channels one less than the total number of channels. In addition, the new action statement provides that, with less than the minimum channels operable, operation may proceed

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provided the minimum number of channels is restored within 1 hour, otherwise the affected diesel generator must be declared inoperable. This additional feature of the action statement avoids the shutdown associated with TS 3.0.3 (if the subject TADOT should last longer than an hour) by providing an appropriate explicit action when more than one of the required minimum channels operable for the primary or secondary relays are inoperable for more than an hour. This portion of the action statement is consistent with the provisions in the ISTS. The revised action statement also requires that, when performing surveillance testing of either primary or secondary relays shall be operable. This ensures there is no loss of function associated with the redundant emergency bus or the primary or secondary undervoltage relays when performing the surveillance.

The licensee has provided the following basis for the requested change:

During the period that surveillance testing is being performed on the emergency bus undervoltage relays, the redundant train emergency bus will be available to perform necessary safety functions. Additionally, the redundant emergency bus undervoltage relays will be operable to detect a loss-of-offsite power and automatically start the redundant EDG, redundant motor-driven AFW pump, and the turbine-driven AFW pump if required. As an additional compensatory feature, the tested secondary relays will be available to provide automatic loss of offsite power protection to their bus during testing. This is due to a testing feature that will automatically enable the secondary undervoltage relays on the bus should a loss of offsite power condition occur during testing. This will provide an additional means of starting the turbine-driven AFW pump and will provide a means of detecting a loss of voltage on the bus, although the time delays will be the longer delays (16 seconds safety injection (SI), 54 seconds non-SI) associated with the secondary relays. Manual initiation of the associated EDG, motordriven AFW pump, and the turbine-driven AFW pump will also be available to the operators in the Main Control Room during the testing.

The staff notes that the revised change also provides a more appropriate required action when more than one channel of primary or secondary undervoltage relays is inoperable, by declaring the affected EDG inoperable. With more than one channel of the primary or secondary relays inoperable they cannot perform their intended function of sensing an undervoltage condition that requires the transfer of the safety bus from its offsite power supply to its EDG power supply. This condition is similar to the loss of the EDG.

With regard to the AFW start function that is performed by these same relays, declaring the EDG inoperable is also a reasonably appropriate action. The EDG requirements in TS 3.8.1 allow 72 hours to correct the inoperable condition, and they specify controls to ensure redundant features powered by the redundant EDG are operable. This, together with the requirement in the revised undervoltage relay action statement that requires the redundant 'emergency bus and associated primary and secondary relays to be operable during the surveillance, ensures that an AFW loss of function condition will not go undetected.

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3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of North Carolina official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (63 FR 24574). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 STATEMENT OF EXIGENT CIRCUMSTANCES

In its submittal, the licensee requested that the NRC review and approve the proposed change as an exigent amendment.

The Commission's regulation as stated in 10 CFR 50.91, provides special exceptions for the issuance of amendments when the usual 30-day public notice cannot be met. One type of special exception is an exigency. An exigency is a case in which the staff and the licensee need to act quickly and time does not permit the Commission to allow 30 days for prior public comment. The NRC staff must also determine that the amendment request involves no significant hazards consideration, and the appropriateness of the conditions which resulted in the need for the exigent request.

Pursuant to 10 CFR 50.91(a)(6)(vi), the licensee provided an explanation of the conditions which resulted in the need for the exigent request and why it could not have been avoided. The discussion demonstrated the licensee's best efforts to make a timely application after becoming aware of the need for a license amendment.

To adequately perform a surveillance requirement for the undervoltage relays, it is necessary to enter TS 3.0.3, which could lead to a plant shutdown. The licensee identified the need to enter TS 3.0.3 for this surveillance during a recent review of its TS interpretations. The licensee identified that its TS interpretation for this surveillance was not in literal compliance with TS. This issue was identified just weeks before the scheduled monthly surveillance was required to be performed. As a result, sufficient time did not exist to allow this amendment to be noticed for the full 30-day public comment period.

On the basis of the above discussion, the staff finds that (1) exigent circumstances exist, as provided for in 10 CFR 50.91(a)(6), in that the licensee and the Commission must act quickly

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and time does not permit the Commission to publish a <u>Federal Register</u> notice allowing 30 days for prior public comment, and (2) the licensee did not deliberately or negligently cause the exigent situation. The Commission noticed the licensee's application for amendment in the <u>Federal Register</u> on May 4, 1998, (63 FR 24574), at which time the Commission made a proposed finding that the amendments involved no significant hazards consideration and there has been no public comment in response to that notice.

Subsequent to the licensee's initial submittal, the staff requested additional information. This request extended the review schedule such that the staff was not able to complete its review prior to the date scheduled for the surveillance test. The licensee performed the surveillance and entered TS 3.0.3. This surveillance is scheduled to be performed again the first week of June. Therefore, the staff will not issue this amendment until 30 days after its initial <u>Federal</u> <u>Register</u> notification, and the staff will consider any public comments submitted within that 30-day period.

6.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission's regulations in 10 CFR 50.92 provide that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Loss-of-Offsite Power Emergency Bus undervoltage relays are not accident initiating components as described in the Final Safety Analysis Report (FSAR). The proposed change allows a surveillance test interval to facilitate required testing per the Harris Nuclear Plant TS. Redundancy of emergency buses, availability of alternate automatic loss-of-offsite power protection, and the capability of manual initiation of affected components combined with the short duration allowed for testing, compensate for the new allowed surveillance interval.

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

2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Loss-of-Offsite Power Emergency Bus undervoltage relays are not accident-initiating components as described in the FSAR. The proposed change only affects testing of the Loss-of-Offsite Power Emergency Bus undervoltage relays while not affecting other structures, systems, or components.

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

3.

The proposed amendment does not involve a significant reduction in the margin of safety.

The proposed change to testing of Loss-of-Offsite Power Emergency Bus undervoltage relays does not affect any of the parameters that relate to the margin of safety as described in the Bases of the TS or the FSAR. Accordingly, NRC Acceptance Limits are not affected by this change.

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

Based on its review, the staff concurs with the licensee's analysis and concludes that the three standards of 10 CFR 50.92(c) are satisfied. Based on the above, the commission has made a final determination that the proposed amendment involves no significant hazards consideration.

7.0 <u>CONCLUSION</u>

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The staff finds the change to the specification of the undervoltage relays to be acceptable. The staff also finds that the change is necessary due to the unique testing design of these relays which actuates both sets of relays concurrently.

Principal Contributor: J. Lazevnick

Date: June 3, 1998

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MEMORANDUM TO: Biweekly Notice Coordinator

FROM: Scott Flanders, Project Manager Project Directorate II-1 Division of Reactor Projects - I/II

SUBJECT: REQUEST FOR PUBLICATION IN BI-WEEKLY FR NOTICE - NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE (TAC NO. M99938)

Carolina Power & Light Company, et al., Docket No. 50-400, Shearon Harris

Nuclear Power Plant, Unit 1, Wake and Chatham Counties, North Carolina

Date of application for amendment: October 29, 1997

Brief description of amendment: This amendment changes Technical Specifications (TS)

3.8.1.1.a.3, 3.8.1.1.b.4, and 3.8.1.1.d.2 by eliminating the plant shutdown requirements in these

TS, and allowing the applicable redundant feature TS to direct the plant shutdown when required.

Date_of issuance: May 22, 1998

Effective date: May 22, 1998

Amendment No. 78

Facility Operating License No. NPF-63. Amendment revises the Technical Specifications.

Date of initial notice in FEDERAL REGISTER: December 31, 1997 (62 FR 68305)

The Commission's related evaluation of the amendment is contained in a Safety Evaluation

dated May 22, 1998.

No significant hazards consideration comments received: No

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Raleigh, North Carolina 27605.

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