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SUBJECT: Application for emergency amend to License NPF-63 & waiver of compliance re auxiliary feedwater pump surveillance

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Carolina Power & Light Company

SEP 27 1990

SERIAL: NLS-90-206
10CFR50.90

Letter Number: HO-900143 (A)

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR EMERGENCY LICENSE AMENDMENT
AND WAIVER OF COMPLIANCE - AUXILIARY FEEDWATER PUMP SURVEILLANCE

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, Carolina Power & Light Company (CP&L) hereby requests an emergency license amendment and a waiver of compliance concerning Auxiliary Feedwater (AFW) Pump surveillance requirements for the Shearon Harris Nuclear Power Plant, Unit 1 (SHNPP). This emergency Technical Specification change request revises Surveillance Requirement 4.7.1.2.1.a.1 associated with monthly testing on a staggered test basis of the two motor-driven auxiliary feedwater pumps. Specifically, this change revises Surveillance Requirement 4.7.1.2.1.a.1 to require that the motor-driven AFW pumps be verified to develop a differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm. In order to avoid an unnecessary plant shutdown, CP&L requests that this license amendment be issued prior to 1:08 p.m. September 28, 1990, or that the NRC issue a waiver of compliance until such time that the emergency license amendment can be processed. Enclosure 1 contains specific information in support of the waiver of compliance request.

Enclosure 2 provides a detailed description of the proposed changes and the basis for the changes.

Enclosure 3 details the basis for the Company's determination that the proposed changes do not involve a significant hazards consideration.

Enclosure 4 is an environmental evaluation which demonstrates that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of the amendment.

Enclosure 5 provides the proposed marked up Technical Specification pages.

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DISCUSSION OF EMERGENCY

The existing Surveillance Requirement 4.7.1.2.1.a.1 requires that the motor-driven AFW pumps be verified to develop a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of greater than or equal to 50 gpm. This acceptance criteria did not consider the impact of Condensate Storage Tank (CST) level or temperature of the fluid being pumped, when specifying a discharge pressure of 1590 psig. During the surveillance test conducted on September 25, 1990, the discharge pressure from the "A" motor-driven AFW pump was measured at 1587 psig. Based on the existing surveillance requirement, the "A" motor-driven AFW pump was declared inoperable. The action statement associated with this surveillance requires that with one AFW pump inoperable, restore the required AFW pumps to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 6 hours.

The proposed amendment revises the surveillance requirement to eliminate the impact of CST level by specifying differential pressure in lieu of discharge pressure and allowing the differential pressure to be compensated to account for variations in fluid temperatures from the assumed value of 70°F. Without the issuance of this proposed license amendment the plant, which is currently operating at 100 percent power, will be required to begin shutdown at 1:08 p.m. September 28, 1990.

Please refer any questions regarding this submittal to Mr. John Eads at (919) 546-4165.

Yours very truly,



R. B. Richey
Vice President
Harris Nuclear Project

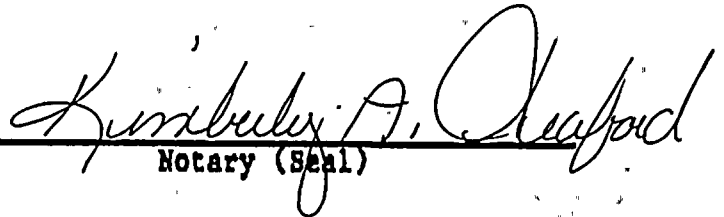
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Enclosures:

1. Basis for Waiver of Compliance Request
2. Basis for Change Request
3. 10CFR50.92 Evaluation
4. Environmental Evaluation
5. Technical Specification Pages

cc: Mr. R. A. Becker
Mr. D. H. Brown
Mr. S. D. Ebnetar
Mr. J. E. Tedrow

R. B. Richey, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.


Notary (Seal)

My commission expires: 12-17-92

ENCLOSURE 1

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR EMERGENCY LICENSE AMENDMENT
AUXILIARY FEEDWATER PUMP SURVEILLANCE

BASIS FOR WAIVER OF COMPLIANCE REQUEST

- (1) A discussion of the requirements for which a waiver is requested.

An NRR Waiver of Compliance is requested for Technical Specification Surveillance Requirement 4.7.1.2.1.a.1 which calls for the monthly testing on a staggered test basis of each of the two motor-driven auxiliary feedwater (AFW) pumps. This waiver is requested until an emergency amendment to Technical Specifications can be processed. The existing surveillance acceptance criteria is to verify each pump develops a discharge pressure of at least 1590 psig at a recirculation flow of at least 50 gpm.

This surveillance is intended to verify that each motor driven AFW pump is capable of delivering a total feedwater flow of 475 gpm at a pressure of 1217 psig to the entrance of the steam generators. This capacity, in conjunction with the turbine driven AFW pump, is sufficient to ensure that adequate feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

The pump surveillance is conducted with the flow paths from the pump discharge to the steam generators isolated. A small installed recirculation line passes the minimum required flow back to the condensate storage tank. This approach was taken in lieu of directing the pumps discharge to the steam generators in order to minimize the number of thermal cycles on the steam generators AFW nozzles.

This technique results in running the motor driven AFW pump near its shut off head. The assumption is that by verifying a sufficiently high discharge pressure at a flow significantly less than that required for the pump to perform its designed function, one would be able to plot a point and compare it with respect to the pump operating curve. As long as the pressure exceeded the value in Technical Specifications, the pump could perform its design function.

ENCLOSURE 1
(continued)

- (2) A discussion of circumstances surrounding the situation including the need for prompt action, and a description of why the situation could not have been avoided.

In the past, the value recorded for the AFW pumps discharge pressure for this surveillance have been acquired from installed instrumentation. It is suspected that the high differential pressure (approximately 650 psid) across the pumps normally open discharge isolation valves which are closed for this test has recently resulted in a small amount of leak by. This suspected leak by results in small pressure surges in the line causing the pump discharge check valve to chatter which increases the magnitude of the surges. In order to achieve a dampened pressure reading at the pump discharge, an electronically dampened pressure transmitter was installed at the pump discharge. When the surveillance was conducted with the locally installed pressure transmitter a discharge pressure of 1587 psig was recorded which falls below the Technical Specification value of 1590. This made the 'A' train motor driven AFW pump inoperable at 1:08 p.m. Tuesday, September 25, 1990. The 72 hour limiting condition for operation requires the plant to enter the six hour shutdown portion of the action statement if the pump is not restored to an operable condition by 1:08 p.m. Friday, September 28, 1990.

This event was not foreseen due to the repeated successful performance of this surveillance since the Harris Plant began commercial operation on May 2, 1987. The pump underwent a detailed inspection during the last refueling outage in the fall of 1989 and was found to be in satisfactory condition.

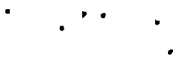
- (3) A discussion of compensatory actions (if any).

Flow was established to the steam generator and six data points recorded and plotted against the vendor pump curve to verify that the pump performance is adequate to meet system design.

- (4) A preliminary evaluation of the safety significance and potential consequences of the proposed request.

The AFW pumps are required to be demonstrated operable at least once per 31 days on a staggered test basis. The test requires that each motor-driven pump develops a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of ≥ 50 gpm.

The problem with this test method is that it does not compensate for CST level (which relates to suction head) or for CST temperature/density corrections, that can significantly affect the test results.



ENCLOSURE 1
(continued)

The purpose of this change is to provide a meaningful test that equates to accurate results. The test will verify that each motor-driven pump develops a differential of ≥ 1558 psid at a recirculation flow of 50 gpm as corrected for a CST temperature of 70°F. This is based on a degraded pump curve that correlates to a value of 475 gpm at the design point on the "A" AFW pump curve. This still provides pump margin due to the appropriate Chapter 15 events analyzed using a 430 gpm value (motor-driven pumps).

This change will not increase the probability or consequences of an analyzed accident nor will it increase the probability or consequence of malfunction of safety related equipment. The test change will not create a new test or experiment nor introduces new equipment to the plant and will not reduce margin of safety as defined in Technical Specification bases.

- (5) A discussion which justifies the duration of the request.

This Technical Specification change more accurately defines the acceptance criteria for the motor driven AFW pumps staggered surveillance test. The pump is currently capable of fulfilling its designed function but is inoperable due solely to an unnecessarily restrictive discharge pressure value. An NRR Waiver of Compliance is requested until the time at which final approval of the emergency Technical Specification change is approved.

- (6) The basis for the licensee's conclusion that the request does not involve a significant hazards consideration.

See Enclosure 3

- (7) The basis for the licensee's conclusion that the request does not involve irreversible environmental consequences.

See Enclosure 4

ENCLOSURE 2

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR EMERGENCY LICENSE AMENDMENT
AUXILIARY FEEDWATER PUMP SURVEILLANCE

BASIS FOR CHANGE REQUEST

Proposed Change

The Technical Specification changes proposed in this submittal revise the acceptance criteria for Surveillance Requirement 4.7.1.2.1.a.1 associated with monthly testing on a staggered test basis, of the two motor-driven AFW pumps. Specifically, this change revises Surveillance Requirement 4.7.1.2.1.a.1 to require that the motor-driven AFW pumps be verified to develop a differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm. The existing surveillance requirement verifies that the motor-driven AFW pumps develop a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of greater than or equal to 50 gpm. This acceptance criteria did not consider the effect of Condensate Storage Tank (CST) level or temperature when specifying a discharge pressure of 1590 psig.

Safety Evaluation

The AFW pumps are required to be demonstrated operable at least once per 31 days on a staggered test basis. This equates to a quarterly test. The test requires that each motor-driven pump develops a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of \geq 50 gpm.

The problem with this test method is that it does not compensate for CST level (which relates to suction head) or for CST temperature/density corrections, that can significantly affect the test results.

The purpose of this change is to provide a meaningful test that equates to accurate results. The test will verify that each motor-driven pump develops a differential of \geq 1558 psid at a recirculation flow of 50 gpm as corrected for a CST temperature of 70°F. This is based on a degraded pump curve that correlates to a value of 475 gpm at the design point on the "A" AFW pump curve. This still provides pump margin due to the appropriate Chapter 15 events analyzed using a 430 gpm value (motor-driven pumps).

This change will not increase the probability or consequences of an analyzed accident nor will it increase the probability or consequence of malfunction of safety related equipment. The test change will not create a new test or experiment nor introduces new equipment to the plant and will not reduce margin of safety as defined in Technical Specification bases.

ENCLOSURE 3

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400 LICENSE NO. NPF-63
REQUEST FOR EMERGENCY LICENSE AMENDMENT
AUXILIARY FEEDWATER PUMP SURVEILLANCE

10 CFR 50.92 EVALUATION

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated, (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. Carolina Power & Light Company has reviewed this proposed license amendment request and determined that its adoption would not involve a significant hazards consideration. The bases for this determination are as follows:

Proposed Change

The Technical Specification changes proposed in this submittal revise the acceptance criteria for Surveillance Requirement 4.7.1.2.1.a.1 associated with monthly testing on a staggered test basis, of the two motor-driven AFW pumps. Specifically, this change revises Surveillance Requirement 4.7.1.2.1.a.1 to require that the motor-driven AFW pumps be verified to develop a differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm. The existing surveillance requirement verifies that the motor-driven AFW pumps develop a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of greater than or equal to 50 gpm. This acceptance criteria did not consider the impact of Condensate Storage Tank (CST) level or temperature when specifying a discharge pressure of 1590 psig.

Basis

The change does not involve a significant hazards consideration for the following reasons:

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

The proposed change revises the surveillance requirements associated with the motor-driven AFW pumps. No safety-related equipment, safety function or plant operations will be altered as a result of this proposed change. The change does not change the design, materials or construction standards applicable to the AFW pumps.



ENCLOSURE 3
(continued)

The proposed surveillance requirement changes continue to ensure that each AFW pump is capable of delivering a total feedwater flow of 475 gpm at a pressure of 1217 psig to the entrance of the steam generators. This capacity, in conjunction with the turbine-driven AFW pump, continues to be sufficient to ensure that feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

Thus it is concluded that there is not a significant increase in the probability or consequences of an accident previously evaluated.

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

The proposed change revises the surveillance requirements associated with the motor-driven AFW pumps. No safety-related equipment, safety function or plant operations will be altered as a result of this proposed change. The change does not change the design, materials or construction standards applicable to the AFW pumps.

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

- (3) The proposed amendment does not result in a significant reduction in the margin of safety.

The proposed change revises the surveillance requirements associated with the motor-driven AFW pumps. No safety-related equipment, safety function or plant operations will be altered as a result of this proposed change. The change does not change the design, materials or construction standards applicable to the AFW pumps.

The proposed surveillance requirement changes continue to ensure that each AFW pump is capable of delivering a total feedwater flow of 475 gpm at a pressure of 1217 psig to the entrance of the steam generators. This capacity, in conjunction with the turbine-driven AFW pump, continues to be sufficient to ensure that feedwater flow is available to remove decay heat and reduce the Reactor Coolant System temperature to less than 350°F when the Residual Heat Removal System may be placed into operation.

Therefore, the proposed changes are administrative in nature and do not impact the operation of SHNPP in manner that involves a reduction in the margin of safety.

ENCLOSURE 4

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR EMERGENCY LICENSE AMENDMENT
AUXILIARY FEEDWATER PUMP SURVEILLANCE

ENVIRONMENTAL CONSIDERATION

10 CFR 51.22(c)(9) provides criterion for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment to an operating license for a facility requires no environmental assessment if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; and (3) result in an increase in individual or cumulative occupational radiation exposure. Carolina Power & Light Company has reviewed this request and determined that the proposed 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 needs to be prepared in connection with the issuance of the amendment. This basis for this determination follows:

Proposed Change

The Technical Specification changes proposed in this submittal revise the acceptance criteria for Surveillance Requirement 4.7.1.2.1.a.1 associated with monthly testing on a staggered test basis, of the two motor-driven AFW pumps. Specifically, this change revises Surveillance Requirement 4.7.1.2.1.a.1 to require that the motor-driven AFW pumps be verified to develop a differential pressure that (when temperature compensated to 70°F) is greater than or equal to 1558 psid at a recirculation flow of greater than or equal to 50 gpm. The existing surveillance requirement verifies that the motor-driven AFW pumps develop a discharge pressure of greater than or equal to 1590 psig at a recirculation flow of greater than or equal to 50 gpm. This acceptance criteria did not consider the impact of Condensate Storage Tank (CST) level or temperature when specifying a discharge pressure of 1590 psig.

Basis

The change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in Enclosure 3, the proposed amendment does not involve a significant hazards consideration.
2. The proposed amendment does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite.



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ENCLOSURE 4
(continued)

- The proposed change only revises the surveillance requirements associated with the motor-driven AFW pumps. The proposed amendment does not introduce any new equipment nor does it require any existing equipment or systems to perform a different type of function than they are currently designed to perform. As such, the change cannot affect the types or amounts of any effluents that may be released offsite.
3. The proposed amendment does not result in an increase in individual or cumulative occupational radiation exposure. The proposed change only substitutes a revised acceptance criteria into an existing surveillance requirement. No additional surveillances or testing results from the amendment. Therefore, the amendment has no affect on either individual or cumulative occupational radiation exposure.