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 ROBINSON, W.R.    Carolina Power & Light Co.  
 RECIP. NAME    RECIPIENT AFFILIATION  
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SUBJECT: Application for amend to license NPF-63, revising TS 3.5.1 to provide optional method of meeting surveillance requirement & to add new Action statement re boron concentration.

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Vice President  
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SERIAL: HNP-97-036  
10 CFR 50.90

MAR 10 1997

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 LICENSE AMENDMENT  
REVISED ACTION AND SURVEILLANCE FOR ECCS ACCUMULATORS

Dear Sir or Madam:

In accordance with the Code of Federal Regulations, Title 10, Part 50.90, Carolina Power & Light Company (CP&L) hereby requests a revision to the Technical Specifications (TS) for the Harris Nuclear Plant (HNP). The requested change revises Specification 3.5.1, Emergency Core Cooling Systems (ECCS) Accumulators to provide an optional method of meeting a surveillance requirement and to add a new Action statement to cover a condition with boron concentration not within limits for one accumulator.

Enclosure 1 provides a detailed description of the proposed changes and the basis for the changes.

Enclosure 2 details, in accordance with 10 CFR 50.91(a), the basis for the Company's determination that the proposed changes do not involve a significant hazards consideration.

Enclosure 3 provides an environmental evaluation demonstrating 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 assessment is required for approval of this amendment request.

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Enclosure 4 provides page change instructions for incorporating the proposed revisions.

Enclosure 5 provides the proposed Technical Specification pages.

In accordance with 10 CFR 50.91(b), CP&L is providing the State of North Carolina with a copy of the proposed license amendment.

Please refer any questions regarding this submittal to Ms. D. B. Alexander at (919) 362-3190.

In order to allow time for procedure revision and orderly incorporation into copies of the Technical Specifications, CP&L requests that the proposed amendment, once approved by the NRC, be implemented within 60 days of issuance of the amendment.

Sincerely,



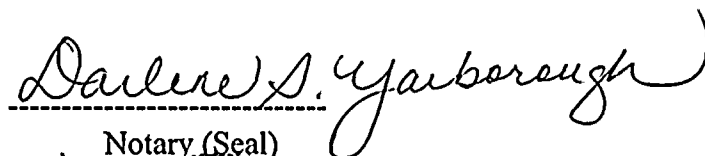
Vice President  
Harris Nuclear Plant

CSB/twk

Enclosures:

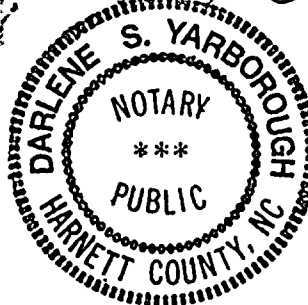
1. Basis for Change Request
2. 10 CFR 50.92 Evaluation
3. Environmental Considerations
4. Page Change Instructions
5. Technical Specification Pages

W. R. Robinson, 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 employees, contractors, and agents of Carolina Power & Light Company.



Notary (Seal)

My commission expires: 2-6-2000



'ci' Mr. J. B. Brady, NRC Senior Resident Inspector  
Mr. M Fry, N.C. DEHNR  
Mr. L. A. Reyes, NRC Regional Administrator  
Mr. N. B. Le, NRC Project Manager

bc: Ms. P. B. Brannan  
Mr. Charles S. Bohanan  
Mr. H. Chernoff (RNP)  
Mr. G. W. Davis  
Mr. J. W. Donahue  
Ms. S. F. Flynn  
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Mr. W. J. Hindman  
Ms. W. C. Langston (PE&RAS File)

Mr. R. D. Martin  
Mr. W. S. Orser  
Mr. G. A. Rolfson  
Mr. D. L. Tibbitts  
Mr. M. A. Turkal (BNP)  
Mr. T. D. Walt  
Nuclear Records  
File: HI/A-2D  
File: H-X-0511

## ENCLOSURE 1

SHEARON HARRIS NUCLEAR POWER PLANT  
NRC DOCKET NO. 50-400/LICENSE NO. NPF-63  
REQUEST FOR LICENSE AMENDMENT  
REVISED ACTION AND SURVEILLANCE FOR ECCS ACCUMULATORS

### BASIS FOR CHANGE REQUEST

#### Background

The ECCS accumulators are pressure vessels partially filled with borated water and pressurized with nitrogen gas. During normal operation each accumulator is isolated from the Reactor Coolant System (RCS) cold legs by two check valves in series. Should the RCS pressure fall below the accumulator pressure of 585 to 665 psig, the check valves open and borated water is forced into the RCS. Mechanical operation of the swing disc check valve is the only action required to open the injection path from the accumulator to the core via the cold leg.

Surveillance 4.5.1.1.a.1 requires that the contained borated water volume and nitrogen cover pressure of the ECCS Accumulators be verified every 12 hours. The current specification requires this verification to be done by observation of the absence of accumulator alarms and provides no alternative method of compliance. The alarm setpoints are set conservatively with respect to the Technical Specification limits which means that an alarm may be present for an accumulator which meets all limits. No allowance is currently provided for a failed alarm circuit. The requested change allows the observation and recording of the actual instrument readings as an acceptable way to meet the surveillance requirements.

In addition to the requested change in acceptable surveillance methods, a new Action c is proposed which defines corrective measures to be taken when an accumulator is out of limits on dissolved boron concentration. The new action will permit a period of 72 hours to restore the accumulator to within the boron concentration limits before proceeding to shutdown the unit and reduce the pressure of the reactor coolant system to less than 1000 psig. Appropriate changes are proposed for Action a to bypass Action b for boron concentration limit conditions.

#### Basis

The surveillance requirement revision simply recognizes that observation of the actual accumulator parameters is an acceptable alternative to a determination that there are no accumulator alarms as a surveillance method. This is acceptable because the accumulator is a static component and rapid changes in values are not expected. The 12 hour frequency will allow for the early detection and correction of off normal trends.

The purpose of the ECCS accumulators is to supply borated water to the RCS when pressure drops below the accumulator nitrogen pressure. Since current HNP analyses show that the accumulators do not discharge following a large steam line break, the transient in which the accumulators are primarily required is the large break Loss of Coolant Accident (LOCA). The accumulators are one of the three sources for ECCS water to reach the core. The other sources are the two high head Charging Safety Injection pumps and the two low head Residual Heat Removal pumps. All of the sources provide borated water, but for a large break LOCA the accumulators are the first of the ECCS sources to begin delivering water. In the initial stages of a large break LOCA reactivity control is provided by the voiding in the core and not by borated water. When accumulators do inject, most of their water does not enter the core. Analyses assume that water from the accumulators does not begin to reach the core until the "beginning-of-core-recovery" (BOCREC). Analyses show that accumulators inject for approximately 20 seconds and of this time the time after BOCREC is only about 2 to 2.5 seconds, which would deliver approximately 1000 gallons to the core from an accumulator. At this time the much larger flow of borated water from the high and low head pumps is being injected into the core at a total flow rate of approximately 2500 gallons per minute. It is this total ECCS flow of borated water which supplements the reactivity control which is still primarily provided by system voids during the reflood period.

An additional consideration is that an accumulator which is outside of the boron concentration limit is unlikely to be very far from the limit. An accumulator is a static system which typically has very slow changes in conditions, since there are no routine makeups to or discharges from the system except for monthly samples to verify boron concentration. The worst case is clearly one in which the accumulator has no boron. Even in this case the discussion above demonstrates that one accumulator below the minimum boron concentration limit will have no effect on the amount of ECCS water available and an insignificant effect on core subcriticality during reflood. Boiling of ECCS water in the core will concentrate boron and the volume of one accumulator is relatively small (~2%) compared to the volume of water available during recirculation flow. Therefore 72 hours is proposed as an acceptable time period to return the boron concentration within limits. This time period is consistent with the allowed out of service times for other Engineered Safety Features such as a Charging Safety Injection pump or an Emergency Diesel Generator.

Both of these proposed changes to Specification 3.5.1 are identical with the equivalent requirements of the Standard Technical Specifications for Westinghouse Plants, NUREG-1431, Rev. 1.

### Conclusions

The requested change revises Technical Specification 3.5.1 to allow the use of instrument

readings to meet surveillance 4.5.1.1.a.1, and adds a new Action c to cover a condition in which one accumulator has a boron concentration not within limits. Both of these changes to Specification 3.5.1 are identical with the equivalent requirements of the Standard Technical Specifications for Westinghouse Plants, NUREG-1431, Rev. 1.



ENCLOSURE 2

SHEARON HARRIS NUCLEAR POWER PLANT  
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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 determination. The bases for this determination are as follows:

Proposed Change

Carolina Power & Light Company proposes to revise Specification 3.5.1, ECCS Accumulators to provide an optional method of meeting surveillance requirements and to add a new Action statement to cover a condition for one accumulator with its boron concentration not within limits.

Basis

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

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

The accumulators are not initiators of any event and so the probability of occurrence of an event is unaffected by either of the proposed changes. The use of actual instrumentation readings to comply with the surveillance does not change the function or performance of the accumulators and thus does not affect any accident consequences. The increase in the allowed time to restore the boron concentration to within limits is consistent with allowed out of service times for other Emergency Safeguards equipment.

It will not have a significant impact on subcriticality during reflood. Therefore, there will be no increase in the consequences of an accident.

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

The proposed changes to the accumulator specification do not involve any physical alterations or additions to plant equipment or alter the manner in which any safety-related system performs its function. 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 the surveillance requirement provides an equivalent means of meeting the requirement. Since there is no change in either the accumulator limits or the surveillance frequency, there is no reduction in safety margin. The new Action c to address returning the boron concentration of a single accumulator to within limits allows an out of service time commensurate with the times allowed for other Engineered Safeguards Features. The boron concentration of one accumulator does not have a significant impact on subcriticality during reflood and thus does not involve a reduction in the margin of safety.

ENCLOSURE 3

SHEARON HARRIS NUCLEAR POWER PLANT  
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ENVIRONMENTAL CONSIDERATIONS

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; (3) result in a significant 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. The basis for this determination follows:

Proposed Change

Carolina Power & Light Company proposes to revise Specification 3.5.1, ECCS Accumulators to provide an optional method of meeting surveillance requirements and to add a new Action statement to cover a condition for one accumulator with its boron concentration not within limits.

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 2, 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.

The proposed change does not involve any new equipment or require existing systems to perform a different type of function than they are currently designed to perform. The

change does not introduce any new effluents or increase the quantities of existing effluents. 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 a significant increase in individual or cumulative occupational radiation exposure.

The proposed change does not result in any physical plant changes or new surveillances which would require additional personnel entry into radiation controlled areas. Therefore, the amendment has no effect on either individual or cumulative occupational radiation exposure.

ENCLOSURE 4  
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PAGE CHANGE INSTRUCTIONS

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ENCLOSURE 5  
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TECHNICAL SPECIFICATION PAGES