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SUBJECT: Application for amend to License NPF-63,changing Spec 4.5.2.d.1 to delete RHR auto closure interlock.

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G. E. VAUGHN
Vice President
Nuclear Services Department

SERIAL: NLS-90-226
10 CFR 50.90

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
RESIDUAL HEAT REMOVAL AUTO CLOSURE INTERLOCK DELETION

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 a revision to the Technical Specifications for the Shearon Harris Nuclear Power Plant, Unit 1.

This Technical Specification Change request proposes to delete the surveillance requirements in Specification 4.5.2.d.1 that verify operability of the Automatic Closure Interlock feature of the Residual Heat Removal System suction isolation valves on high RCS pressure. In addition the proposed request includes various administrative and editorial revisions to Specification 3/4.5.2 which are intended to clean-up and simplify the presentation of the Specification.

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

Enclosure 2 details the basis for the Company's determination that the proposed changes do not involve a significant hazards consideration.

Enclosure 3 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 4 provides the proposed Technical Specification pages.

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Add: NRR Balukjian H 1 1
NRR Trammell, C. 1 1
Hr Encl

Enclosure 5 provides the SHNPP plant specific comparison to WCAP-11736-A which documents the NRC staff approved generic RHR ACI deletion design, and a discussion of the five specific plant improvements required in the SER on the WCAP.

In order to support the removal of the autoclosure interlock feature during the upcoming refueling outage at SHNPP, it is requested that this Technical Specification Change Request be approved by February 15, 1991, and that it be effective on the date of issuance with implementation within 60 days of issuance.

Please refer any questions regarding this submittal to Mr. Steven Chaplin at (919) 546-6623.

Yours very truly,

G. E. Vaughn

GEV/SDC

Enclosures:
1. Basis for Change Request
2. 10CFR50.92 Evaluation
3. Environmental Evaluation
4. Technical Specification Pages
5. SHNPP plant-specific comparison to WCAP-11736-A

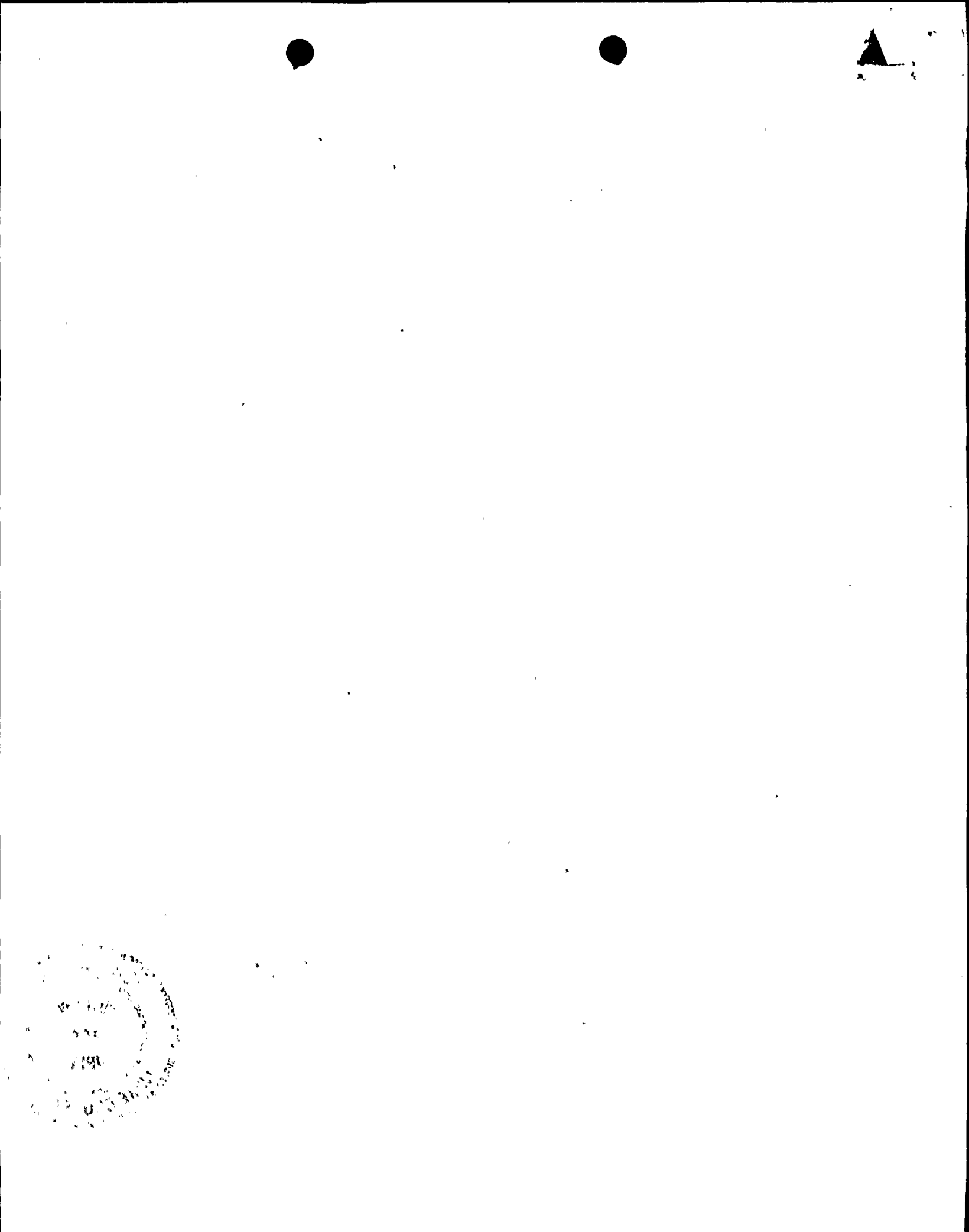
cc: Mr. R. A. Becker
Mr. J. E. Tedrow
Mr. Dayne H. Brown
Mr. S. D. Ebneter

G. E. Vaughn, 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.

Lisa M. Randall
Notary (Seal)

LISA RANDALL NOTARY PUBLIC WAKE COUNTY, N.C.

My commission expires: 6-7-93



bcc: Mr. H. R. Banks
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Mr. C. Carmichael (2)
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ENCLOSURE 1

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT

BASIS FOR CHANGE REQUEST

Proposed Change

This Technical Specification Change request proposes to delete the surveillance requirements in Specification 4.5.2 "Emergency Core Cooling Systems" that verify operability of the Residual Heat Removal System suction isolation valve Automatic Closure Interlock feature. In addition the proposed request includes various administrative and editorial revisions to Specification 3/4.5.2 which are intended to clean-up and simplify the presentation of the Specification.

Basis

The Shearon Harris Nuclear Power Plant (SHNPP) design includes a Residual Heat Removal Autoclosure Interlock feature (RHR ACI) that serves as a secondary mechanism to ensure that double valve isolation exists when the reactor coolant system rises to a pressure greater than RHR System design. The ACI would automatically close the RHR suction isolation valves if the plant operators failed to close the valves and RCS pressure exceeds the 700 psig interlock setpoint. Technical Specification 3/4.5.2 "Emergency Core Cooling Systems - ECCS Subsystems - T_{ave} Greater Than or Equal to 350°F" requires the operability testing of the Residual Heat Removal System Auto Closure Interlock feature once per eighteen months.

It is the intention of Carolina Power & Light Company (CP&L) to remove the RHR ACI and delete its associated surveillance requirements from the Technical Specifications. Westinghouse has shown in WCAP-11736-A (Reference 1) that replacement of the RHR ACI with alarms results in a net improvement in plant safety by removing a predominant initiator to loss of decay heat removal capacity and by reducing the probability of an intersystem LOCA.

The deletion of the RHR ACI for a Westinghouse design PWR was granted for the Diablo Canyon plant in February 1988. Subsequently, Westinghouse Electric Corporation, for the Westinghouse Owners Group (WOG), was contracted to provide a generic report that evaluated the removal of the RHR ACI. Westinghouse produced WCAP-11736 which documents, for four Westinghouse reference plants, the review and analysis that was performed to justify the deletion of the autoclosure interlock associated with the residual heat removal system suction/isolation valves. The reference plants represent the lead plant in each of four groups into which participating Westinghouse plants were categorized.

This report was reviewed by the NRC and found to provide an acceptable basis for removal of the RHR ACI. The NRC Safety Evaluation Report also accepted

the use of the WCAP as a reference in subsequent Westinghouse plant submittals proposing RHR ACI deletion provided that certain plant improvements are included. (See the NRC staff Safety Evaluation Report (SER) Reference 2.)

The Shearon Harris Nuclear Power Plant was selected as the lead plant for Group 4. For this reason, WCAP-11736-A provides the underlying basis for the proposed RHR ACI deletion at SHNPP.

As documented in the WCAP, Westinghouse performed a probabilistic risk analysis which consisted of reviewing the existing SHNPP RHR system description, the current valve control circuitry description, the proposed hardware changes, and the proposed alarm circuitry addition. Westinghouse then performed an interfacing systems LOCA analysis, RHRS unavailability analysis, and overpressurization analysis to determine the effect of the modifications.

The intersystem LOCA analysis shows that the frequencies of Event V decrease with the removal of the ACI feature. The RHRS unavailability analysis shows that the removal of the ACI feature decreases the RHRS unavailability for short term cooling and for long term cooling. The overpressurization analysis shows that removal of the ACI feature will have no effect on the heat input transients and will result in a slight increase in frequency of occurrence for some categories of mass input transients with a decrease in others. The net effect of the ACI feature removal is considered to be a net improvement in plant safety.

As documented in the WCAP, the SHNPP design will:

- Leave the open permissive interlock intact and unchanged
- Add an alarm to each valve which will activate if a series/suction valve is not fully closed when RCS pressure is above the alarm setpoint. The setpoint will be determined as described in the WCAP (i.e., open permissive interlock setpoint < alarm setpoint pres. < RHRS design - RHR pump head).
- Incorporate control room valve position alarms which will remain functional when power is removed from the valves
- Incorporate the RHR isolation valve position alarms in the alarm response procedure

The SHNPP design will also incorporate control room open/closed valve position status lights which will remain functional when power is removed from the valves. In three additional areas, the SHNPP design will differ from the discussion provided in WCAP-11736-A; RHR isolation valve motor operator sizing, removal of power to the valve operators prior to leak checking the valves, and addition of a variable (0-15 second) delay timer in the RHR suction/isolation valve position alarm.

A detailed comparison of the SHNPP proposed changes, plant configuration and assumptions with WCAP-11736-A is provided in Enclosure 5. Where differences exist in the plant configuration, assumptions, or proposed changes, they have been examined to verify that they do not negatively affect the conclusions reached in the WCAP. As a result, the basis and conclusions reached in WCAP-11736-A are applicable to the proposed modifications at the Shearon Harris Nuclear Power Plant. Enclosure 5 also includes a discussion of the plant specific improvements cited in the NRC safety evaluation report.

In addition to the technical changes to Section 4.5.2.d of the Technical Specifications, this change request includes administrative changes which aid in the effective and clear presentation of the specification but are purely editorial in nature.

References

(1) WCAP 11736-A, October 1989, "Residual Heat Removal Autoclosure Interlock Removal Report for the Westinghouse Owners Group"

(2) Letter, Mr. Ashok Thadani (NRR) to Mr. Roger A. Newton (WOG) on August 8, 1989, transmitting the staff's Safety Evaluation Report 'Acceptance for Referencing WCAP 11736 Rev. 0.0, "Residual Heat Removal System Autoclosure Interlock (ACI) Removal Report" in Plant Specific Submittals'.

ENCLOSURE 2

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT

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

This Technical Specification Change request proposes to delete the surveillance requirements in Specification 4.5.2 "Emergency Core Cooling Systems" that verify operability of the Residual Heat Removal System suction isolation valve Automatic Closure Interlock feature. In addition the proposed request includes various administrative and editorial revisions to Specification 3/4.5.2 which are intended to clean-up and simplify the presentation of the Specification.

Basis

The change 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 Shearon Harris Nuclear Power Plant (SHNPP) design includes a Residual Heat Removal Autoclosure Interlock feature that serves as a secondary mechanism to ensure that double valve isolation exists between the reactor coolant system and the residual heat removal system when the RCS pressure rises to a level greater than the RHR System design.

   Based on three areas of probabilistic analysis, 1) the frequency of an intersystem LOCA (Event V), 2) the availability of the RHRS, and 3) the effect on overpressure transients, there is an overall increase in safety when the autoclosure interlock is removed and replaced with administrative controls, continuous valve position indication and

alarms. While the frequency of the consequences of the overpressurization event does increase, the increase is considered to be insignificant and offset by the reduction in frequency of Event V and the increase in RHRS availability. The demonstrated improvement in RHRS availability will further reduce the probability of the accidents for which RHRS failure during shutdown cooling is an initiating event.

Carolina Power & Light Company has performed a review to ensure that the bases for the reference plant analyses are valid for SHNPP. Where differences exist in the proposed changes, plant configuration or assumptions, they have been examined to verify that they do not negatively affect the conclusions reached in the WCAP. As a result, the basis and conclusions reached in WCAP-11736-A are applicable to the proposed modifications at the Shearon Harris Nuclear Power Plant.

The administrative changes in this request aid in the effective and clear presentation of the specifications requirements. They are editorial in nature.

Based on the above, this change does not involve an increase in the probability or consequences of accidents previously evaluated.

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

The RHR ACI removal modifications will not introduce any new type of accident than already evaluated. The modifications do not introduce any new accident initiators. In fact, replacement of the autoclosure interlock feature with RHR isolation valve position indication and alarms reduces the potential of inappropriate RHR system isolation and the probability of an intersystem LOCA.

The administrative changes in this request aid in the effective and clear presentation of the specifications requirements. They are editorial in nature.

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 involve a significant reduction in the margin of safety.

The RHR ACI feature is a secondary mechanism for ensuring that double valve isolation exists between the reactor coolant system and the residual heat removal system. The RHR ACI is not specifically relied upon for maintaining the RCS pressure boundary. Replacement of the ACI with an alternative mechanism which provides automatic notification to the plant operators does not involve a significant reduction in the margin of safety.

The administrative changes in this request aid in the effective and clear presentation if the specifications requirements. They are editorial in nature.

Therefore, the proposed change does not impact the operation of SHNPP in a manner that involves a reduction in the margin of safety.

ENCLOSURE 3

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400/LICENSE NO. NPF-63
REQUEST FOR LICENSE AMENDMENT

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. The basis for this determination follows:

Proposed Change

This Technical Specification Change request proposes to delete the surveillance requirements in Specification 4.5.2 "Emergency Core Cooling Systems" that verify operability of the Residual Heat Removal System suction isolation valve Automatic Closure Interlock feature. In addition the proposed request includes various administrative and editorial revisions to Specification 3/4.5.2 which are intended to clean-up and simplify the presentation of the Specification.

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 Technical Specification change request proposes to replace the secondary mechanism for ensuring double valve isolation between the reactor coolant system and the residual heat removal system. The change does not affect the types or the amounts of effluents that may be

released offsite. The proposed modification reduces the potential for release in that it lowers the frequency of an intersystem LOCA (Event V).

3. The proposed amendment does not result in an increase in individual or cumulative occupational radiation exposure.

Replacement of the RHR ACI with administrative controls and continuous valve position indication and alarms will not result in significant additional occupational exposure. Additional occupational exposure would be minimal since the initial setup of alarm limit switches and opening torque switches change could be accomplished in conjunction with Generic Letter 89-10 MOV testing. The other activities associated with this change would be performed outside the Containment in radiologically clean areas.