ACCEI	ERATED DISI	RIBUTION	DEMONSTRATION	SYSTEM	1
ai ai sit si	· ·	•	•	· ·	ء لاي م
	REGULATOR	ų information	DISTRIBUTION SYSTEM	(RIDS)	Į.
ACCESSION FACIL: 50 AUTH.NA CUTTER,A RECIP.1	N NBR:8907070180 0-400 Shearon Har AME AUTHOR A.B. Carolin NAME RECIPI	DOC.DATE: ris:Nuclear F AFFILIATION a Power, & Lig ENT AFFILIATI	89/06/30 NOTARIZED: Power Plant, Unit 1, ht Co.,	YES DOCKE Carolina 05000	T # 400
	Docum	ent Control E	sranch (Document Cont	ror Desk),	T
SUBJECT	: Application for limits.	amend to Lic	ense NPF-63 re KCS p	ressure temp	, • • •
DISTRIB TITLE: (	UTION CODE: A001D OR Submittal: Gen	COPIES RECE eral Distribu	TIVED:LTR _ ENCL _	SIZE: <u>[4</u> 3]	
NOTES :'A	pplication for pe	rmit' renewa'l	filed	5 T 🗧 🗧 0,5000	400 /
и				CODIE:	A
	RECIPIENT ID CODE/NAME PD2-1 LA BECKER.D	LTTR ENCL 1 1 5 5	ID CODE/NAME PD2-1 PD	LTTR ENCL 1 1	D
ΤΝΠΕΡΟΝΙΆΤ.•	ACDS	1 6 6	אססע קסע קסע קסע	<b>1</b> 1	D
,	NRR/DEST/CEB 8H NRR/DEST/ICSB NRR/DEST/RSB 8E NUDOCS-ABSTRACT OGC/HDS1 RES/DSIR/EIB		NRR/DEST/ESB 8D NRR/DEST/MTB 9H NRR/DOEA/TSB 11 OC/LFMB REG FTEE 01		<b>S</b>  
EXTERNAL:	LPDR NSIC	1 1 1 1	NRC PDR	1- 1	- *

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR ENCL 26 28

R ľ D S D D

S

1

5

1

ţ

## 

í

5 I

.

ł

ì

.



Carolina Power & Light Company

P.O. Box 1551 • Raleigh, N.C. 27602

30N 3 0 1989

A. B CUTTER Vice President Nuclear Services Department SERIAL: NLS-89-189 10CFR50.90

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 REACTOR COOLANT SYSTEM PRESSURE-TEMPERATURE LIMITS

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 (SHNPP), Unit 1.

Due to the revised methodology for predicting reactor vessel material embrittlement provided in Revision 2 of Regulatory Guide 1.99, "Radiation Embrittlement of Reactor Vessel Materials", it is necessary to revise the SHNPP Technical Specifications. The revisions affect the pressure-temperature limitations on the Reactor Coolant System, the heatup and cooldown rates for the RCS, and the associated Low Temperature Overpressure Protection System setpoints and enable temperature. In addition, the proposed amendment includes other related changes as identified in the Enclosure 1.

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.

 8907	070180	890630	
<b>PD</b> R	ADOCK	05000400	•
P		PDC	1 2

### اله ( المحمد المراجع من المحمد الم المحمد المحمد

#### a Arakan (j. 1

•

#### 1997 - 19

, ۲

7

ę

ė

.`

е е

\*

ŝ

•

١

,

١

Document Control Desk NLS-89-189 / Page 2

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

Yours very truly

A. B. Cutter

ABC/SDC

ې م

Enclosures:

- 1. Basis for Change Request
- 2. 10CFR50.92 Evaluation
- 3. Environmental Evaluation
- 4. Technical Specification Pages
- cc: Mr. R. A. Becker Mr. W. H. Bradford Mr. Dayne H. Brown
  - Mr. S. D. Ebneter

A. B. Cutter, 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.

<u>Xisa M. Kardall</u> Notary (Seal)

My commission expires: 6-7-93

// .

. .

 $\sim$ 

•

#### 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

Due to the revised methodology for predicting reactor vessel material embrittlement provided in Revision 2 of Regulatory Guide 1.99 (RG 1.99), "Radiation Embrittlement of Reactor Vessel Materials", it is necessary to revise the SHNPP Technical Specifications. The revisions affect the pressure-temperature limitations on the Reactor Coolant System (RCS), the heatup and cooldown rates for the RCS, and the associated Low Temperature Overpressure Protection System (LTOPS) setpoints. In addition, the proposed amendment includes other related changes as identified below.

- recalculated limiting material RT<sub>NDT</sub>
- modified LTOP enable temperature
- selection of instrumentation for monitoring RCS Average Temperature
- removal of references to criticality limits
- rewording to clarify certain specifications
- deleted redundant surveillance
- revised the Tech Spec BASES

Table 1 provides a concise listing of the changes proposed in this request and the Technical Specifications affected by these changes.

#### Basis for the Change

#### (a) - Background

Technical Specifications 3.4.9.1 and 3.4.9.2 "REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITS" provide RCS pressure-temperature limits to protect the reactor pressure vessel from brittle fracture by clearly separating the region of normal operations from the region where the vessel may be subject to brittle fracture. The heatup and cooldown rates of Specifications 3.4.9.1 and 3.4.9.2, and LTOP setpoints in Specification 3.4.9.4 are designed to ensure that the RCS pressuretemperature limits are not exceeded during any condition of normal operation, including anticipated operational occurrences, and system hydrostatic tests.

Title 10 of the Code of Federal Regulations Part 50 Appendix G, "Fracture Toughness Requirements," and Appendix H, "Reactor Vessel Material Surveillance Program Requirements," require the calculation of changes in the fracture toughness of reactor vessel materials caused by neutron radiation throughout the service life of nuclear reactors. Regulatory Guide 1.99 contains procedures for calculating the effects of neutron radiation embrittlement of the low-alloy steels currently used for light-water-cooled reactor vessels.

The current RCS pressure-temperature limitations for SHNPP were developed in accordance with Revision 1 of this Regulatory Guide and Westinghouse prodecures.

The NRC issued Revision 2 of the Regulatory Guide effective May 1988 and by Generic Letter 88-11<sup>1</sup> directed licensees to review the new revision, assess its impact, and implement any necessary changes within two plant outages of the effective date of the revised regulatory guide.

This Technical Specification change request will implement CP&L's response to the Generic Letter<sup>2</sup>.

Revision 2 of the regulatory guide revises the procedures for calculating vessel radiation embrittlement. Generally, Revision 2 methods result in a lowering of the Appendix G pressure curves, narrowing the operating window, and restricting flexibility of heatup and cooldown operations. By increasing the margin between the region where the vessel may be subject to brittle fracture and the region of the P-T curves where operation is acceptable, these more restrictive curves ensure the continued safe operation of SHNPP by reducing the probability of operations in a manner which may exceed the brittle fracture limits of the reactor vessel.

As a result, the SHNPP Technical Specification need to be revised to incorporate the changes outlined in "Proposed Changes" above.

(b) - Pressure-Temperature Curves / Heatup & Cooldown Rates / LTOP Setpoints / RT<sub>NDT</sub> Recalculation

Using the RG 1.99 Revision 2 equations, new limiting pressuretemperature curves were prepared for three Effective Full Power Years (EFPY) of operation. As predicted in Generic Letter 88-11 the new curves shift down and to the right, i. e. to lower pressures and higher temperatures respectively (see revised Tech. Spec. Figures 3.4-2 and 3.4-3). The new 3 EFPY curves impose more restrictive limits on plant operations than do the existing 4 EFPY curves developed from Revision 1 of the Regulatory Guide. The primary cause of the more restrictive operating curves is the new weighting factor in RG 1.99 Rev. 2 assigned to nickel. The more restrictive curves have been offset in part by determining with greater accuracy the initial RT<sub>NDT</sub> for the limiting reactor vessel material. This was accomplished by applying the method

- 1 Generic Letter 88-11, "NRC Position on Radiation Embrittlement Of Reactor Vessel Materials And Its Impact On Plant Operations", dated July 12, 1988
- 2 CP&L's response to Generic Letter 88-11 dated January 6, 1989 (NLS-88-276)

la. 111 9, 

,

¥ R,

4

۰.× ۰, h

6

K

Ŧ

6

•

, ,

2

,

•



described in ASME B&PV Code Section III NB-2331(a)(4) for calculating RT<sub>NDT</sub>. Recalculation accounts for a 4°F reduction in the initial reference temperature. (See TS Figures 3.4-2, 3.4-3 and Table B 3/4.4-1.) Due to the more restrictive pressure-temperature curves, the LTOP setpoints and the heatup/cooldown rates were also revised. Revised LTOP setpoints and heatup/cooldown rates were chosen to: 1) ensure that given a limiting mass or heat input to the RCS<sup>3</sup> during normal operations, including anticipated occurrences and system hydrostatic testing, the Appendix G pressure-temperature curves are not challenged, and 2) ensure that operational flexibility is maintained. In order to accomplish this, both the LTOP low and high PORV sliding scale setpoints between 100°F and 120°F were lowered (See TS Figure 3.4-4), and in general heating up and cooling down was slowed, i.e. the rates reduced, below 200°F and 140°F respectively (See TS Table 4.4-6).

#### (c) - LTOP Enable Temperature

In addition to the above changes, the LTOP enable/disable temperature was lowered from 335°F to 325°F. This provides a 25°F buffer between the Mode 3: Hot Shutdown - Mode 4: Hot Standby break at 350°F and the LTOP enable/disable setpoint. The lowered arming setpoint is well within the guidance for automatic overpressure protection at low temperatures provided in the Regulatory Analysis developed for RG 1.99 Rev.2. The Regulatory Analysis states: "The low temperature overpressure protection system should be operable during startup and shutdown conditions below the enable temperature, defined as the water temperature corresponding to a metal temperature of at least  $RT_{NDT}$  + 90°F at the beltline location (1/4t or 3/4t) that is controlling in the Appendix G limit calculations." For SHNPP, this is conservatively calculated to be 296°F. Table 1 provides a listing of the Technical Specifications which reference the LTOP enable temperature and are affected by this change.

#### (d) - RCS Average Temperature

Technical Specification 3.4.9.2 "REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITS" and associated Table 4.4-6 "Maximum Cooldown and Heatup Rates For Modes 4, 5, and 6" provide guidance for acceptable heatup and cooldown rates based on the lowest RCS coldleg temperature. The specification ensures the plant is in compliance with Appendix G requirements, which protect the reactor vessel from operational occurrences that could cause brittle fracture. It is the

3

Limiting mass input - inadvertent startup of one charging/safety injection pump Limiting heat input - inadvertent startup of one reactor coolant pump while the steam generator secondary side is 50°F higher than the primary side



5

÷1

Þ

•

. A , н. Ŧ\* ľ, 9





•







•

',

þ ,









Q

temperature of the reactor vessel metal which is of concern, and RCS temperatures are used as an estimate of the metal temperature.

When no reactor coolant pumps are operating, the wide range temperature instruments are not an accurate indication of the metal temperature. The temperature of the water leaving the RHR Heat Exchanger, which flows to the RCS cold legs and into the vessel, would be more accurate in determining this temperature. Therefore, in order to provide a more accurate RCS temperature while an RHR loop is in operation, the footnote to Table 4.4-6 is being amended to use the RHR Heat Exchanger outlet temperature when no reactor coolant pumps are running.

#### (e) - Criticality Limits

Technical Specifications 3.4.9.1 and 3.4.9.2 "REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITS" and Figure 3.4-3 "Reactor Coolant System Heatup Limitations - Applicable to 4 EFPY" provide criticality limits for the RCS at various heatup rates and hydrostatic test conditions. These criticality limits are similar to the vessel pressure-temperature limits in that they separate the region of normal operation from that where brittle fracture is a potential concern; the only difference being the mechanism deals with temperature/neutronics versus temperature/pressure. However the information presented here has no operating benefit since Technical Specification 3.1.1.4 requires the RCS to be at a minimum of 551°F prior to achieving criticality. Technical Specification 3.10.3 provides an exception to that requirement but only allows a 10°F reduction to 541°F. The criticality limits that would be imposed by Specifications 3.4.9.1, 3.4.9.2 and the revised Figure 3.4-3 are at least 100°F below the minimum limits imposed by Specification 3.1.1.4 and are therefore bounded. Since the criticality limits of Specifications 3.4.9.1 and 3.4.9.2 are bounded by Specification 3.1.1.4 and do not provide any other operational benefit they are removed from the specifications. This change is considered administrative in nature.

#### (f) - Specification Clarifications

Three Specifications were modified to provide clarification

The Action Statements of Specifications 3.4.9.1 and 3.4.9.2
"REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITS" were amended to provide clear direction of when an engineering evaluation is needed. These specifications provide RCS pressure-temperature limits, maximum operating heatup and cooldown rates and a maximum temperature rate of change during hydrostatic tests of the RCS. The existing Action statement specifies that if any of the limits are exceeded, restore the desired RCS conditions and perform an engineering evaluation to determine the effects of the out-of-limit condition. The Appendix G pressure-temperature limits were developed to protect the reactor pressure vessel from brittle fracture by clearly separating the region of normal operations, including operational occurrences transients, from the region

# • The state of the state of the state of the

•

т. -

X

× × × ×

4

×

. -

۴,

,

s A

. я

.

×

.

· · ·

where the vessel is subject to brittle fracture. The heatup and cooldown rates and LTOP setpoints are designed to ensure that the Appendix G RCS pressure-temperature limits are not challenged. Exceeding the heatup or cooldown rates by themselves will not result in exceeding the Appendix G curves. Therefore, an engineering evaluation to determine continued operability of the reactor vessel is not necessary. The revised Action statement takes this into account by requiring an engineering evaluation only if the Appendix G pressure-temperature limits are exceeded. The current Action statement is overly restrictive in that it requires an engineering evaluation anytime a heatup or cooldown rate is exceeded whether or not the pressure temperature curve is actually exceeded.

 Technical Specification 3.1.2.3 "REACTOR COOLANT SYSTEMS/CHARGING PUMP - SHUTDOWN" Surveillance 4.1.2.3.2 concerns the verification of all but one charging/safety injection pump as inoperable while in Modes 4, 5 and 6 and while less than the LTOP enable temperature setpoint. This surveillance has been modified to appropriately reference one breaker per pump, include all relevant requirements and rearranged to provide a more concise description. This change is purely administrative in nature. This will avoid the possibility of operator confusion with regard to the applicability and conditions of this surveillance requirement. This change is administrative in nature since the purpose and effect of the surveillance remains unchanged.

#### (g) - Redundant Surveillance

Technical Specification 3.5.3 "ECCS SUBSYSTEMS -  $T_{avg}$  LESS THAN 350°F", requires one charging/safety injection pump, one RHR pump and heat exchanger, and an injection flow path capable of taking suction from either of two specified sources to be operable while in Mode 4 - Hot Shutdown. Surveillance requirement 4.5.3.2 requires that the remaining charging/safety injection pumps are verified <u>in</u>operable below the LTOP enable temperature. This surveillance requirement is redundant to and bounded by 4.1.2.3.2. Technical Specification 3.1.2.3 "CHARGING PUMP - SHUTDOWN", requires one charging/safety injection pump operable in Modes 4 - Hot Shutdown, 5 - Cold Shutdown and 6 - Refueling. Associated surveillance 4.1.2.3.2 requires all other charging/safety injection pumps to be verified as <u>in</u>operable whenever RCS temperature is below the LTOP enable setpoint in Modes 4, 5 or 6. Since Surveillance 4.1.2.3.2 bounds Surveillance 4.5.3.2 and 4.5.3.2 provides no other benefit, it is being deleted.

#### (h) - BASES

The revised BASES are included for your information.

#### ની તો છે. ઉદ્ધાર્થના આ

ŕ

,

•

•

÷;

· · ·

.

,

#### Table 1 : Technical Specifications Affected

·	<u>Change</u>	Number	<u>Subject</u>
1)	Revised RCS pressure/temperature	Fig 3.4-2	RCS Cooldown Limitations
2	limitations	Fig 3.4-3	RCS Heatup Limitations
2)	Revised RCS heatup/cooldown rates & ranges	Table 4.4-6	Maximum Heatup & Cooldown Rates
3)	Modified sliding (auctioneered) PORV setpoints	Fig 3.4-4	PORV Setpoint Requirements
4)	Recalculated RT <sub>NDT</sub> -	Fig 3.4-2	RCS Cooldown Limitations
	limiting material	Fig 3.4-3	RCS Heatup Limitations
5)	Lowered LTOP enable/disable	Fig 3.4-4	PORV Setpoint Requirements
	cemperature	3.1.2.1	Boration Flowpath <sup>1</sup>
		3.1.2.3	Charging Pump <sup>1</sup>
•	1	4.1.2.3.2	Charging Pump <sup>2</sup>
		3.4.1.3	RCS Loop Operability <sup>1</sup>
		3.4.1.4.1	RHR Loop Operability <sup>1</sup>
	-	3.4.4	RCS Relief Valve (PORV) Operability <sup>1</sup>
		3.4.9.4	RCS Overpressure Protection <sup>1</sup>
	·	3.5.3	ECCS Operability <sup>1</sup>
6)	Selection of instrumentation for RCS Average Temperature	Table 4.4-6	Maximum Heatup & Cooldown Rates
7)	Removes some references to criticality limits.	3.4.9.1	RCS Pressure/Temperature Limits Modes 1,2,3
	A -	3.4.9.2	RCS Pressure/Temperature Limits Modes 4,5,6
	-	Fig 3.4-3	RCS Heatup Limitations

#### Table 1 : Technical Specifications Affected

	<u>Change</u>	Number	<u>Subject</u>
			a.
8)	Rewording to clarify certain specifications	4.1.2.3.2	Charging Pump - shutdown
		3.4.9.1	RCS Pressure/Temperature Limits Modes 1,2,3
		3.4.9.2	RCS Pressure/Temperature Limits Modes 4,5,6
9)	Deleted redundant surveillance	4.5.3.2	ECCS charging/SI pump limitations
10)	Revised the Tech Spec BASES	Various	

1 modified footnote reference to LTOP enable temperature of 325°F versus 335°F.

2 Added reference to 325°F enable temperature

E1-7

## ¥34 1.2 C. •

. #

× × × × × ×

\* Á 4 , **\*** 

.

, A

•

,

5

-

•

•

.)

,

÷

#### ENCLOSURE 2

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

#### 10CFR50,92\_EVALUATION

The Commission has provided standards in 10CFR50.92(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

Due to the revised methodology for predicting reactor vessel material embrittlement provided in Revision 2 of Regulatory Guide 1.99 (RG 1.99), "Radiation Embrittlement of Reactor Vessel Materials", it is necessary to revise the SHNPP Technical Specifications. The revisions affect the pressure-temperature limitations on the Reactor Coolant System (RCS), the heatup and cooldown rates for the RCS, and the associated Low Temperature Overpressure Protection System (LTOPS) setpoints. In addition, the proposed amendment includes other related changes as identified below.

- recalculated limiting material RT<sub>NDT</sub>
- modified LTOP enable temperature
- selection of instrumentation for monitoring RCS Average Temperature
- removal of references to criticality limits
- rewording to clarify certain specifications
- deleted redundant surveillance
- revised the Tech Spec BASES

#### <u>Basis</u>

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 as described below.

### ĸ, ۍ: ۱۵ м 19 ŧ , 3 ۱, I. in the second ×j \$ 1.000

1

r ø 4, これをないたいので ころ こう

3. • · \*

.

,

10

t

•

•

۰<u>،</u>

>

•

ł,

(a) Technical Specifications 3.4.9.1 and 3.4.9.2 "REACTOR COOLANT SYSTEM PRESSURE/TEMPERATURE LIMITS" provide RCS pressuretemperature limits to protect the reactor pressure vessel from brittle fracture by clearly separating the region of normal operations from the region where the vessel is subject to brittle fracture. The heatup and cooldown rates of Specifications 3.4.9.1 and 3.4.9.2, and LTOP setpoints in Specification 3.4.9.4 are designed to ensure that the RCS pressure-temperature limits are not exceeded during any condition of normal operation, including anticipated operational occurrences, and system hydrostatic tests.

Title 10 of the Code of Federal Regulations Part 50 Appendix G, "Fracture Toughness Requirements," and Appendix H, "Reactor Vessel Material Surveillance Program Requirements," require the calculation of changes in the fracture toughness of reactor vessel materials caused by neutron radiation throughout the service life of nuclear reactors. The 'change' is used in conjunction with the initial material reference temperature ( $RT_{NDT}$ ) to establish the limiting pressure-temperature curves. Regulatory Guide 1.99 contains procedures for calculating the effects of neutron radiation embrittlement of the low-alloy steels currently used for light-water-cooled reactor vessels.

Revision 2 of the regulatory guide upgrades and expands the procedures for calculating vessel radiation embrittlement. Generally, Revision 2 methods result in a lowering of the Appendix G pressure-temperature curves. By increasing the margin between the region where the vessel may be subject to brittle fracture and the region of acceptable operations, these more restrictive curves ensure the continued safe operation of SHNPP by reducing the probability of operation in a manner which may exceed the brittle fracture limits of the reactor vessel.

The revised pressure-temperature curves required modification of the LTOP setpoints and the heatup and cooldown rates. Revised LTOP setpoints and heatup/cooldown rates were chosen to ensure that the existing margin was maintained i. e., that given a limiting mass or heat input to the RCS during normal operations, anticipated occurrences and system hydrostatic testing, the Appendix G pressure-temperature curves are not exceeded.

Therefore, the proposed amendments to the pressure-temperature limitations, the heatup and cooldown rates, the LTOP setpoints and the recalculated initial limiting material  $RT_{NDT}$  do not involve a significant increase in the probability or consequences of an accident previously evaluated because collectively they implement more accurate and restrictive protection to prevent brittle fracture of the reactor pressure vessel.

(b) The revised LTOP enable temperature does not significantly increase the probability or consequences of an accident previously evaluated. Low Temperature Overpressure Protection of the RCS is

E2-2

い からないないない あい ı. ,'

٩

e,

No.

見段

۷ ۵,۶

なぞきなない

فتخدي . 45 e . ۰, ¥\$ ··· . . . . • 5

r . .  $^{1}t$ 

\* 2 (I -1 1. .

۰.

¥.,

,

required by Technical Specification 3.4.9.4. LTOP is necessary at low temperatures since operator response to an RCS pressurization event may not successfully avoid exceeding the RCS pressuretemperature limits. The Regulatory Analysis for Revision 2 of Regulatory Guide 1.99 specified that LTOP is necessary at temperatures below  $RT_{NDT} + 90^{\circ}F$ . This corresponds to 296°F for SHNPP. The SHNPP LTOP system is currently armed at 335°F. A 10°F lowering of the enable temperature would have no impact on the LTOP system's capability to perform its automatic protection function at low temperatures since LTOP is still armed above 296°F. Therefore the proposed LTOP enable temperature change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- (c) The change to Technical Specification Table 4.4-6 concerning the choice of the instrumentation for monitoring RCS temperature provides the operator with temperature information that more accurately characterizes the vessel material temperature. It would be used to determine the appropriate heatup or cooldown rate for the RCS. Use of more accurate temperature information would have no adverse affect on the probability or consequences of previously evaluated accidents.
- (d) The remaining changes, i.e., removal of criticality limits, specification clarifications, and deleted redundant surveillance are administrative in nature and therefore would have no impact on 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.

This amendment does not introduce any new equipment, operating procedures or constraints. This amendment either changes existing limits or incorporates administrative changes. Therefore no new accident or malfunction is introduced by this amendment.

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

The margin of safety defined in the Technical Specification Bases is not reduced by this change, since restrictions remain in place to ensure the operating limits of the reactor vessel are not challenged. The effect of the amendment is to implement more accurate and restrictive protection from brittle fracture of the reactor pressure vessel and as such to enhance the margin of safety.



۲

×.,

rai di e

**6**7 .

ŧ

n and a second sec

۰ ×

> ••• . • •

.

::

.

¥

L

#### ENCLOSURE 3

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

#### ENVIRONMENTAL CONSIDERATION

10CFR51.22(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 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

Due to the revised methodology for predicting reactor vessel material embrittlement provided in Revision 2 of Regulatory Guide 1.99 (RG 1.99), "Radiation Embrittlement of Reactor Vessel Materials", it is necessary to revise the SHNPP Technical Specifications. The revisions affect the pressure-temperature limitations on the Reactor Coolant System (RCS), the heatup and cooldown rates for the RCS, and the associated Low Temperature Overpressure Protection System (LTOPS) setpoints. In addition, the proposed amendment includes other related changes as identified below.

- recalculated limiting material RT<sub>NDT</sub>
- modified LTOP enable temperature
- selection of instrumentation for monitoring RCS Average Temperature
- removal of references to criticality limits
- rewording to clarify certain specifications
- deleted redundant surveillance
- revised the Tech Spec BASES

#### <u>Basis</u>

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 changes proposed are to systems, administrative controls and limits unrelated to effluents generated or released from the facility.
- 3. The proposed amendment does not result in an increase in individual or cumulative occupational radiation exposure. The changes proposed are to systems, administrative controls and limits unrelated to personnel radiation exposure.