

December 15, 1975

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Docket No. 50-324

Carolina Power & Light Company
 ATTN: Mr. J. A. Jones
 Executive Vice President
 336 Fayetteville Street
 Raleigh, North Carolina 27602

Gentlemen:

The Commission has issued the enclosed Amendment No. 8 to Facility Operating License No. DPR-62 for the Brunswick Steam Electric Plant, Unit No. 2. The amendment consists of Change No. 7 to the Technical Specifications in response to your application dated October 22, 1975.

This amendment raises the torus water level setpoint at which the high pressure coolant injection pump suction valves switch suction from the condensate storage tank to the torus from -2'3" to -2'0".

Copies of the Safety Evaluation and the Federal Register Notice are also enclosed.

Sincerely,

Robert A. Purple, Chief
 Operating Reactors Branch #1
 Division of Reactor Licensing

Enclosures:

1. Amendment No. 8
2. Safety Evaluation
3. Federal Register Notice

cc w/enclosures:
 See next page

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SURNAME →	CMTrammell: lb	RCudlin	APM	RAPurple	
DATE →	12/11/75	12/1/75	12/12/75	12/15/75	

cc w/enclosures:

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Mr. W. A. Kopp, Jr.
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Commissioners of Brunswick County
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cc w/enclosures & incoming:
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Relations
116 West Jones Street
Raleigh, North Carolina 27603

Mr. Dave Hopkins
Environmental Protection Agency
1421 Peachtree Street, NE.
Atlanta, Georgia 30309

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 8
License No. DPR-62

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company (the licensee) dated October 22, 1975, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations; and
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, the license is amended by a change to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility License No. DPR-62 is hereby amended to read as follows:



2.C.(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications, as revised by issued changes thereto through Change No. 7 ."

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Robert A. Purple, Chief
Operating Reactors Branch #1
Division of Reactor Licensing

Attachment:
Change No. 7 to the
Technical Specifications

Date of Issuance: December 15, 1975

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ATTACHMENT TO LICENSE AMENDMENT NO. 8
CHANGE NO. 7 TO THE TECHNICAL SPECIFICATIONS
FACILITY OPERATING LICENSE NO. DPR-62
DOCKET NO. 50-324

Revise Appendix A as follows:

Remove page 3.2-35/3.2-36 and replace with identically numbered revised page.

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TABLE 3.2-9

INSTRUMENTATION THAT INITIATES OR CONTROLS
THE CORE AND CONTAINMENT COOLING SYSTEMS
HIGH PRESSURE COOLANT INJECTION SYSTEM

<u>Trip Function</u>	<u>Trip Level Setting</u>	<u>Minimum Number of Operable Instrument Channels per Trip System</u>	<u>Required Action When Minimum Conditions for Operation are not Satisfied</u>	<u>Remarks</u>
1. High drywell pressure E11-PS-N011A,B,C,D	≤ 2 psig	(2)	(1)	Initiates HPCI and has contacts in core spray, LPCI, ADS and diesel start
2. Reactor low water level #2 B21-LIS-N031A,B,C,D	≥ 126.5" above TAF (-38" instrument)	(2)	(1)	Initiates HPCI and has contacts in core spray, LPCI, ADS and diesel start
3. Condensate storage tank low water level E41-LS-N002 E41-LS-N003	≥ Elev. 23'-4" (Tank zero = Elev. 20'-0½") (10,000 Gal.)	2	(1)	Provides interlock to HPCI pump suction valves
4. Suppression chamber high water level E41-LS-N015A,B	≤ Elev. (-) 2'-0" (Torus center-line = 0'-1")	2	(1)	Provides interlock to HPCI pump suction valves
5. HPCI trip system bus power monitor E41-K55/E41-K56	NA	1	(1)	Monitors availability of power to logic systems

NOTES:

- (1) If the minimum number of operable channels is not available, the system is considered inoperable and the requirements of Specification 3.5 apply
- (2) There shall be two operable, one operable and one tripped, or two tripped trip systems for each trip function. If the minimum number of operable instrument channels is not available for one of the two trip systems, this condition may exist for up to seven days provided that during that time the operable system is functionally tested immediately. If the condition lasts longer than seven days, both trip systems shall be tripped. If the minimum number of instrument channels is not available for both trip systems both trip systems shall be tripped.

TABLE 4.2-9

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CSCS

HIGH PRESSURE COOLANT INJECTION SYSTEM

<u>Trip Function</u>	<u>Functional Test</u>	<u>Calibration</u>	<u>Instrument Check</u>
1. High drywell pressure E11-PS-N011A,B,C,D	Same pressure switches that are used for core spray initiation due to high drywell pressure and will be functionally tested and calibrated at same time.		
2. Reactor low water level #2 B21-LIS-N031A,B,C,D	Same level instruments that are used for core spray initiation due to reactor low water level #3, and will be functionally tested and calibrated at same time.		
3. Condensate storage tank low water level E41-LS-N002 E41-LS-N003	once/month	(1)	NA
4. Suppression chamber high water level E41-LS-N015A,B	once/month	(1)	NA
5. HPCI trip system bus power monitor E41-K55/E41-K56	once/month	NA	NA

HPCI subsystem logic system functional test will be performed once/6 months
 HPCI subsystem auto isolation logic test will be performed once/6 months

NOTES:

- (1) When a functional test shows the setpoints are out of specified limits, a calibration will be performed immediately.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 8 TO FACILITY LICENSE NO. DPR-62

CHANGE NO. 7 TO TECHNICAL SPECIFICATIONS

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-324

Introduction

By letter dated October 22, 1975, Carolina Power & Light Company (the licensee) requested a change to the Technical Specifications appended to Facility Operating License No. DPR-62 for operation of the Brunswick Steam Electric Plant, Unit No. 2. At the present time, the High Pressure Coolant Injection (HPCI) system is designed to transfer the HPCI pump suction from the Condensate Storage Tank (CST) to the torus when the torus water level rises to -2'3" (this level is with reference to the torus equator, where 0'1" corresponds to the exact equator). The proposed change would raise this setpoint three inches, thereby causing the HPCI pump suction switchover to occur at a level of -2'0" in the torus.

Discussion

The HPCI system, which is part of the Emergency Core Cooling System (ECCS), is normally aligned to take suction from the CST to inject water into the reactor feedwater line in the event of either reactor low water level or high drywell pressure (ECCS initiation signal).

Since this water source (the CST) is exterior to the containment (drywell and torus) and the two condensate storage tanks have a combined capacity of one million gallons, the system is designed to switch suction from the CST to the torus at a pre-set rising level in the torus to prevent overflowing the torus. This would occur in the event of a leak in the reactor pressure boundary since the leakage would drain into the torus. Switching the HPCI pump suction to the torus would stop the external addition of water and thereby stop the torus water level from rising further, since the switchover would convert the system to one in which torus water is recirculated.

At the present time, the switchover is set to occur when the torus water level rises to -2'3". Also, present Technical Specifications require that the torus water level be maintained between -2'7" and -2'3". Thus, the HPCI switchover setpoint lies within the allowable torus water level band (at the torus water level upper limit). To prevent inadvertent switchover of the HPCI pump suction valves from the CST to the torus and thereby inject water of less desirable quality into the reactor in the event of a plant transient requiring the use of the HPCI system, the licensee has requested to raise this switchover setting three inches higher than the upper limit or torus water level. Thus, for normal operations, the setpoint for the HPCI switchover would not be reached.

Evaluation

The Brunswick Unit 2 plant utilizes a Mark I (light bulb-torus) type containment with the following contained volumes:

drywell free volume:	164,100 ft ³
torus free volume:	134,600 ft ³
torus water volume (max)	89,600 ft ³

A change in torus water level of three inches (from -2'3" to -2'0") is equivalent to approximately 1500 ft³ of water volume. With the revised Technical Specification setpoint this additional water could be present in the torus during the long term post-accident phase and could have a small effect on containment pressure due to compression of the containment free volume. Water levels in the torus during normal operation would not be affected as they would still be governed by the existing Technical Specifications (-2'7" to 2'3").

We have evaluated the potential effect on containment pressure and find that it is negligible since the decrease in free volume is less than 1% (1500 ft³ out of 298,700 ft³). Since containment pressures during the long term post-accident phase are relatively low and not design governing, a small increase in containment pressure is not significant. Therefore, we conclude that the proposed change to the Technical Specifications will not adversely affect the containment system and is acceptable.

The change in torus water level setpoint for HPCI suction has no effect on ECCS performance following a LOCA and has no effect on the results of any other postulated accidents or anticipated transients.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: December 15, 1975

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-324

CAROLINA POWER & LIGHT COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

Notice is hereby given that the U.S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 8 to Facility Operating License No. DPR-62 issued to Carolina Power & Light Company for operation of the Brunswick Steam Electric Plant, Unit 2, located in Brunswick County, North Carolina. The amendment is effective as of its date of issuance.

The amendment raises the torus water level setpoint at which the high pressure coolant injection pump suction valves switch suction from the condensate storage tank to the torus from -2'3" to -2'0".

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment is not required since the amendment does not involve a significant hazards consideration.

For further details with respect to this action, see (1) the application for amendment dated October 22, 1975, (2) Amendment No. 8 to License No. DPR-62, with Change No. 7, and (3) the Commission's related Safety Evaluation. All of these items are available for public

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inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D.C. and at the Southport-Brunswick County Library, 109 W. Moore Street, Southport, North Carolina 28461.

A copy of items (2) and (3) may be obtained upon request addressed to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland, this 15th day of December 1975.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/

Robert A. Purple, Chief
Operating Reactors Branch #1
Division of Reactor Licensing

*See letter for
concomitance.*

OFFICE >	RL:ORB#1	TR:CSB	OELD	RL:ORB#1		
SURNAME >	C. Trammell Lb	RCudlin	ALU	RAPurple		
DATE >	12/28/75	11/ /75	12/12/75	12/15/75		

PRELIMINARY DETERMINATION

NOTICING OF PROPOSED LICENSING AMENDMENT

50-324
Docket File
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LICENSEE: Carolina Power & Light

REQUEST FOR: A new torus water level setpoint for: transfer of HPCI pump suction from CST to torus on increasing torus water level.

REQUEST DATE: October 22, 1975

- PROPOSED ACTION: () Pre-notice Recommended
 (XX) Post-notice Recommended
 () Determination delayed pending completion of Safety Evaluation

BASIS FOR DECISION: The High Pressure Coolant Injection (HPCI) pump (an ECCS pump) is normally aligned to take suction from the Condensate Storage Tanks (CST) to inject water into the reactor feedline in the event of either reactor low level or high drywell pressure (ECCS initiation).

Since this water source is exterior to the containment and these tanks have a capacity of one million gallons, the system is designed to switch suction from the CST to the torus at a preset rising level in the torus to prevent overflowing the torus. This would occur in the event of a break in the reactor pressure boundary since the leakage would drain into the torus. Switching the HPCI pump suction to the torus would stop external addition of water and convert the system to one where torus water is recirculated.

The HPCI pump is normally aligned to the CST because this water source is of reactor-grade quality, whereas torus water is frequently not.

At the present time, the switchover is designed to occur when the torus level is at -2'3" (this level is with reference to the torus equator). Present Tech. Specs. require that torus water (over)

- CONCURRENCES: DATE:
1. C. M. Trammell 11/6/75
C. M. Trammell
 2. R. A. Purple 11/6/75
R. A. Purple
 3. K. R. Goller 11/7/75
K. R. Goller
 4. ONED 11-28-75
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level be maintained between -2'7" and -2'3". Thus, the HPCI switchover setpoint is the same as the torus water level upper limit. To prevent inadvertent switchover of the HPCI pump suction valves from the CST to the torus and thereby inject water of less desirable quality into the reactor in the event of a plant transient, the licensee has requested to move this switchover setting three inches higher than the upper limit on torus water level.

Safety implications of the requested change involve a consideration of the effect of adding an additional three inches of water (1500 cubic feet) to the torus (normally containing 87,000 cubic feet) before switching to the recirculation mode. The addition of this extra water has a compressing effect on the torus/drywell vapor space because of the reduction in this space caused by displacement with water. Using very conservative assumptions, we find that this effect is negligible. The containment (both drywell and torus) is designed for 62 psig. The peak pressure reached in the containment pressure analysis is 26.5 psig in the torus. With the added three inches of water, this pressure is increased by about 0.3 psig, and therefore the effect of the setpoint change is insignificant. The change has no effect on the ECCS analysis for Brunswick.

For the reasons discussed above, the requested change does not involve an increase in the probability or consequences of accidents previously considered, and does not involve a significant decrease in a safety margin. Post-noticing is therefore appropriate, as the requested change does not involve a significant hazards consideration.