July 8, 1985

Docket Nos. 50-325/324

Mr. E. E. Utley
Executive Vice President
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Dear Mr. Utley:

The Commission has issued the enclosed Amendment Nos. 85 and 111 to Facility Operating License Nos. DPR-71 and DPR-62 for the Brunswick Steam Electric Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications in response to your submittal of March 6, 1985.

The amendments change the Technical Specifications (TS) for Unit 1 with regard to Tables 3.3.5.3-1 and 4.3.5.3-1 (Accident Monitoring Instrumentation) and Section 3/4.6.2.1 (Suppression Chamber) to incorporate the inclusion of a suppression pool temperature monitoring system (SPTMS) which meets the acceptance criteria of NUREG-0661, Appendix A. The channel check for item 4.3.5.3-1.4 is being changed from monthly to daily to provide consistency with TS 4.6.2.1.d.1 for Unit 1 and Unit 2. In addition, TS sections 3/4.6.2.1 and 3/4.6.4.1 (Drywell-Suppression Chamber Vacuum Breakers) have been modified to more closely conform to the guidance of the BWR-4 Standard Technical Specifications (STS), NUREG-0123. The other Unit 2 change is made to eliminate redundancy in Surveillance Requirement 4.6.2.1.b.2.b.

A copy of the Safety Evaluation is also enclosed.

Sincerely,

Original signed by/

Marshall Grotenhuis, Project Manager
Operating Reactors Branch #2
Division of Licensing

Enclosures:
1. Amendment No. 85 to License No. DPR-71
2. Amendment No. 111 to License No. DPR-62
3. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION

Docket File	FEltawila		
NRC PDR	SNorris	BGrimes	OPA, CMiles
Local PDR	MGrotenhuis	TBarnhart (8)	RDiggs
ORB#2 Reading	OELD	WJones	Gray File
HThompson	LJHarmon	MVirgilio	Extra - 5
	ELJordan	ACRS (10)	JPartlow

DL:ORB#2	DL:ORB#2	DL:ORB#2	OELD	DL:AD-OR
SNorris:ajs	MGrotenhuis	DVassallo		GLainas
06/28/85	06/ /85	06/ /85	06/ /85	06/ /85

Mr. E. E. Utley
Carolina Power & Light Company
Brunswick Steam Electric Plant, Units 1 and 2

cc:

Richard E. Jones, Esquire
Carolina Power & Light Company
336 Fayetteville Street
Raleigh, North Carolina 27602

George F. Trowbridge, Esquire
Shaw, Pittman, Potts and Trowbridge
1800 M Street, N. W.
Washington, D. C. 20036

Mr. Charles R. Dietz
Plant Manager
Post Office Box 458
Southport, North Carolina 28461

Mr. Franky Thomas, Chairman
Board of Commissioners
Post Office Box 249
Bolivia, North Carolina 28422

Mrs. Chrys Baggett
State Clearinghouse
Budget and Management
116 West Jones Street
Raleigh, North Carolina 27603

Resident Inspector
U. S. Nuclear Regulatory Commission
Star Route 1
Post Office Box 208
Southport, North Carolina 28461

J. Nelson Grace
Regional Administrator
Region II Office
U. S. Nuclear Regulatory Commission
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dayne H. Brown, Chief
Radiation Protection Branch
Division of Facility Services
Department of Human Resources
Post Office Box 12200
Raleigh, North Carolina 27605

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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 85
License No. DPR-71

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Carolina Power & Light Company (the licensee) dated March 6, 1985, 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;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-71 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 85 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 8, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 85

FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Revise the Appendix A Technical Specifications as follows:

Remove	Insert
vii	vii
3/4 3-51	3/4 3-51
3/4 3-52a	3/4 3-52a
3/4 3-52c	3/4 3-52c
3/4 6-9	3/4 6-9
3/4 6-10	3/4 6-10
-	3/4 6-10a
-	3/4 6-10b
3/4 6-18	3/4 6-18
3/4 6-19	3/4 6-19
B 3/4 3-3	B 3/4 3-3
B 3/4 6-3	B 3/4 6-3
B 3/4 6-4	B 3/4 6-4

The changed areas are indicated by marginal lines.

INDEX

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

TABLE 3.3.5.3-1
ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT AND INSTRUMENT NUMBER	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	APPLICABLE OPERATIONAL CONDITIONS	ACTION
1. Reactor Vessel Pressure (B21-PI-R004A,B; C32-LPR-R608; and C32-PT-N005A,B)	2	1	1, 2	82
2. Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037; and B21-LTM-N037-1)	2	1	1, 2	82
3. Suppression Chamber Water Level (CAC-LT-2601; CAC-LI-2601-1) (CAC-LT-2602; CAC-LR-2602)	2	1	1, 2	82
4. Suppression Chamber Water Temperature (CAC-TE-4426-2 thru 13; CAC-TY-4426-1; CAC-TR-4426-1) (CAC-TE-4426-15 thru 26; CAC-TY-4426-2; CAC-TR-4426-2)	2	1	1, 2	82(b)
5. Suppression Chamber Atmosphere Temperature (CAC-TE-1258-17 thru 20; CAC-TY-4426-1(2); CAC-TR-4426-1(2); C91-P602)	2	1	1, 2	82(b)
6. Drywell Pressure (CAC-PI-4176; CAC-PT-4176; CAC-PR-1257-1; and CAC-PT-4175)	2	1	1, 2	82
7. Drywell Temperature (CAC-TE-1258-1 thru 13, 22, 23, 24; CAC-TY-4426-1(2); CAC-TR-4426-1(2); C91-P602)	2	1	1, 2	82(b)
8. Drywell Radiation (CAC-AR-1260; CAC-AQH-1260-1,2,3; CAC-AR-1261; CAC-AQH-1261-1,2,3; CAC-AR-1262; CAC-AQH-1262-1,2,3)	2	2	1, 2, 3	81

TABLE 3.3.5.3-1 (Continued)

ACCIDENT MONITORING INSTRUMENTATION

INSTRUMENT AND INSTRUMENT NUMBER	REQUIRED NUMBER OF CHANNELS	MINIMUM CHANNELS OPERABLE	APPLICABLE OPERATIONAL CONDITIONS	ACTION
13. Turbine Building Ventilation Monitor# (D12-RE-4561; D12-RE-4562; D12-RR-4548-2; D12-RR-4548-3)	1	1	1, 2, 3	81
14. Off-gas Stack Ventilation Monitor# (D12-RE-4573; D12-RE-4574; D12-RR-4599-2; D12-RR-4599-3)	1	1	1, 2, 3	81

High range noble gas monitors

(a) An OPERABLE instrument channel shall consist of the AT instrument and either the AI instrument or the XY-XY-AR instruments.

(b) See also specification 3.6.2.1 for ACTION requirements for the Suppression Pool Temperature Monitoring System Instrumentation.

TABLE 4.3.5.3-1

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL CALIBRATION
1. Reactor Vessel Pressure (B21-PI-R004A,B; C32-LPR-R608; and C32-PT-N005A,B)	M	R
2. Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037; and B21-LTM-N037-1)	M	R
3. Suppression Chamber Water Level (CAC-LT-2601; CAC-LI-2601-1) (CAC-LT-2602; CAC-LR-2602)	M	R
4. Suppression Chamber Water Temperature (CAC-TE-4426-2 thru 13; CAC-TY-4426-1; CAC-TR-4426-1) (CAC-TE-4426-15 thru 26; CAC-TY-4426-2; CAC-TR-4426-2)	D	R
5. Suppression Chamber Atmosphere Temperature (CAC-TE-1258-17 thru 20; CAC-TY-4426-1(2); CAC-TR-4426-1(2); C91-P602)	M	R
6. Drywell Pressure (CAC-PI-4176; CAC-PT-4176; CAC-PR-1257-1; and CAC-PT-4175)	M	R
7. Drywell Temperature (CAC-TE-1258-1 thru 13, 22, 23, 24; CAC-TY-4426-1(2); CAC-TR-4426-1(2); C91-P602)	M	R
8. Drywell Radiation (CAC-AR-1260; CAC-AQH-1260-1,2,3; CAC-AR-1261; CAC-AQH-1261-1,2,3; CAC-AR-1262; CAC-AQH-1262-1,2,3)	M	R
9. Drywell Oxygen Concentration (CAC-AT-4409-37; CAC-AI-4409-40; CAC-X-XY-4348-2; CAC-X-XY-4349-2; CAC-AR-4409-41) (CAC-AT-4410-37; CAC-AI-4410-40; CAC-X-XY-4362-2; CAC-X-XY-4363-2; CAC-AR-4410-41)	M	R

CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION SYSTEMS

SUPPRESSION CHAMBER

LIMITING CONDITION FOR OPERATION

3.6.2.1 The suppression chamber shall be OPERABLE with:

a. The pool water:

1. Volume between 87,600 ft^3 and 89,600 ft^3, equivalent to a level between -27 inches and -31 inches, and a

2. Maximum average temperature of 95°F during OPERATIONAL CONDITION 1 or 2, except that the maximum average temperature may be permitted to increase to:

a) 105°F during testing which adds heat to the suppression chamber.

b) 110°F with THERMAL POWER less than or equal to 1% of RATED THERMAL POWER.

c) 120°F with the main steam line isolation valves closed following a scram.

b. Two OPERABLE suppression chamber water temperature instrumentation channels with a minimum of 11 operable RTD inputs per channel.

c. A total leakage from the drywell to the suppression chamber of less than the equivalent leakage through a 1-inch diameter orifice at a differential pressure of 1 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

a. With the suppression chamber water level outside the above limits, restore the water level to within the limits within 6 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 1 or 2 with the suppression chamber average water temperature greater than 95°F, restore the average temperature to less than or equal to 95°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours, except, as permitted above:

CONTAINMENT SYSTEMS

LIMITING CONDITIONS FOR OPERATION (Continued)

ACTION: (Continued)

1. With the suppression chamber average water temperature greater than 105°F during testing which adds heat to the suppression chamber, stop all testing which adds heat to the suppression chamber and restore the average temperature to less than or equal to 95°F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With the suppression chamber average water temperature greater than 110°F manually scram the reactor and operate at least one residual heat removal loop in the suppression pool cooling mode.

3. With the suppression chamber average water temperature greater than 120°F, depressurize the reactor pressure vessel to less than 200 psig within 12 hours.

c. With one suppression chamber water temperature instrumentation channel inoperable, restore the inoperable channel to OPERABLE status within 7 days or verify suppression chamber water temperature to be within the limits at least once per 12 hours.

d. With both suppression chamber water temperature instrumentation channels inoperable, restore at least one inoperable temperature instrumentation channel to OPERABLE status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

e. With the drywell-to-suppression chamber bypass leakage in excess of the limit, restore the bypass leakage to within the limit prior to increasing reactor coolant temperature above 212°F.

SURVEILLANCE REQUIREMENTS

4.6.2.1 The suppression chamber shall be demonstrated OPERABLE:

a. By verifying the suppression chamber water volume to be within the limits at least once per 24 hours.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 24 hours in OPERATIONAL CONDITION 1 or 2 by verifying the suppression chamber average water temperature to be less than or equal to 95°F, except:

1. At least once per 5 minutes during testing which adds heat to the suppression chamber, by verifying the suppression chamber average water temperature to be less than or equal to 105°F.

2. At least once per hour when suppression chamber average water temperature is greater than 95°F, by verifying:

a) Suppression chamber average water temperature to be less than or equal to 110°F, and

b) THERMAL POWER to be less than or equal to 1% of RATED THERMAL POWER.

3. At least once per 30 minutes following a scram with suppression chamber average water temperature greater than 95°F, by verifying suppression chamber average water temperature less than or equal to 120°F.

c. By an external visual examination of selected emergency core cooling system suction line penetrations of the suppression chamber enclosure prior to taking the reactor from COLD SHUTDOWN after safety/relief valve operation with the suppression chamber average water temperature greater than or equal to 160°F and reactor coolant system pressure greater than 200 psig.

d. By verifying at least two suppression chamber water temperature instrumentation channels OPERABLE by performance of a:

1. CHANNEL CHECK at least once per 24 hours.

2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and

3. CHANNEL CALIBRATION at least once per 18 months (550 days).

with the temperature alarm setpoint for high water temperature less than or equal to 95°F. (CAC-TE-4426-2 thru 13; CAC-TY-4426-1; CAC-TR-4426-1) (CAC-TE-4426-15 thru 26; CAC-TY-4426-2; CAC-TR-4426-2)

e. At least once per 18 months by:

1. A visual inspection of the accessible interior of the suppression chamber and exterior of the suppression chamber enclosure.

SURVEILLANCE REQUIREMENTS (Continued)

2. Conducting a drywell-to-suppression chamber bypass leak test at an initial differential pressure of 1 psig and verifying that the differential pressure does not decrease by more than 0.25 inches of water per minute for a 10 minute period.

CONTAINMENT SYSTEMS

3/4.6.4 VACUUM RELIEF

DRYWELL - SUPPRESSION CHAMBER VACUUM BREAKERS

LIMITING CONDITION FOR OPERATION

3.6.4.1 All drywell-suppression chamber vacuum breakers shall be OPERABLE and in the closed position with:

a. The position indicator OPERABLE, and

b. An opening set point of less than or equal to 0.5 psid.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, and 3.

ACTION:

a. With no more than 2 drywell-suppression chamber vacuum breakers inoperable for opening but known to be in the closed position, the provisions of Specification 3.0.4 are not applicable and operation may continue until the next COLD SHUTDOWN provided the surveillance requirements of Specification 4.6.4.1.a are performed on the OPERABLE vacuum breakers within 4 hours and at least once per 15 days thereafter, until the inoperable vacuum breakers are restored to OPERABLE status.

b. With one drywell-suppression chamber vacuum breaker in the open position, as indicated by the position indicating system, the provisions of Specificaton 3.0.4 are not applicable and operation may continue provided the surveillance requirements of Specification 4.6.4.1.a are performed on the OPERABLE vacuum breakers, and the surveillance requirements of Specification 4.6.4.1.b are performed within 8 hours and at least once per 72 hours thereafter, until the inoperable vacuum breaker is restored to the closed position.

c. With the position indicator of any drywell-suppression chamber vacuum breaker inoperable, the provisions of Specification 3.0.4 are not applicable, and operation may continue provided the surveillance requirements of Specification 4.6.4.1.b are performed within 8 hours and at least once per 72 hours thereafter, until the inoperable position indicator is returned to OPERABLE status.

d. Otherwise, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.6.4.1 Each drywell-suppression chamber vacuum breaker shall be demonstrated OPERABLE:

a. At least once per 31 days and after any discharge of steam to the suppression chamber from any source, by exercising each vacuum breaker through one complete cycle and verifying that each vacuum breaker is closed as indicated by the position indication system.

b. Whenever a vacuum breaker is in the open position, as indicated by the position indication system, by conducting a test that verifies that the differential pressure is maintained greater than 1/2 the initial delta P for one hour without N_2 makeup.

c. At least once per 18 months during shutdown by:

1. Verifying the opening setpoint, from the closed position, to be less than or equal to 0.5 psid,

2. Performance of a CHANNEL CALIBRATION that each position indicator indicates the vacuum breaker to be open if the vacuum breaker does not satisfy the delta P test in 4.6.4.1.b.

MONITORING INSTRUMENTATION (Continued)

3/4.3.5.2 REMOTE SHUTDOWN MONITORING INSTRUMENTATION

The OPERABILITY of the remote shutdown monitoring instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT SHUTDOWN of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criteria 19 of CFR 50.

3/4.3.5.3 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess important variables following an accident. This capability is consistent with the recommendations of Regulatory Guide 1.97, "Instrumentation for Light Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short Term Recommendations."

The suppression chamber water temperature monitoring system performs a dual function. It provides for accident monitoring as recommended by Regulatory Guide 1.97. This system is also designed to meet the acceptance criteria of NUREG-0661, Appendix A in monitoring average suppression chamber water temperature during normal operating conditions. Refer to Sections 3/4.3.5.3 and 3/4.6.2.1 for Limiting Conditions for Operation and Surveillance Requirements pertaining to each function.

3/4.3.5.4 SOURCE RANGE MONITORS

The source range monitors provide the operator with information on the status of the neutron level in the core at very low power levels during start-up. At these power levels, reactivity additions should not be made without this flux level information available to the operator. When the intermediate range monitors are on scale adequate information is available without the SRMs and they can be retracted.

3/4.3.5.5 CHLORINE DETECTION SYSTEM

The OPERABILITY of the chlorine detection systems ensures that an accidental chlorine release will be detected promptly and the necessary protective actions will be automatically initiated to provide protection for control room personnel. Upon detection of a high concentration of chlorine, the control room emergency ventilation system will automatically isolate the control room and initiate operation in the recirculation mode to provide the required protection. The detection systems required by this specification are consistent with the recommendations of Regulatory Guide 1.95 "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release."

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

The specifications of this section ensure that the primary containment pressure will not exceed the calculated pressure of 49 psig during primary system blowdown from full operating pressure.

The pressure suppression pool water provides the heat sink for the reactor primary system energy release following a postulated rupture of the system. The pressure suppression chamber water volume must absorb the associated decay and structural sensible heat released during primary system blowdown from 1020 psig. Since all of the gases in the drywell are purged into the pressure suppression chamber air space during a loss of coolant accident, the pressure of the liquid must not exceed 62 psig, the suppression chamber maximum pressure. The design volume of the suppression chamber, water and air, was obtained by considering that the total volume of reactor coolant to be condensed is discharged to the suppression chamber and that the drywell volume is purged to the suppression chamber.

Using the minimum or maximum water volumes given in the specification, containment pressure during the design basis accident is approximately 49 psig, which is below the design pressure of 62 psig. Maximum water volume of 89,600 ft^3 results in a downcomer submergence of 3'4" and the minimum volume of 87,600 ft^3 results in a submergence approximately four inches less. The Monticello tests were run with a submerged length of three feet and with complete condensation. Thus, with respect to the downcomer submergence, this specification is adequate. The maximum temperature at the end of the blowdown tested during the Humboldt Bay and Bodega Bay tests was 170°F and this is conservatively taken to be the limit for complete condensation of the reactor coolant, although condensation would occur for temperatures above 170°F.

When it is necessary to make the suppression chamber inoperable, this shall only be done as provided in Specification 3.5.3.3.

Under full power operation conditions, blowdown from an initial suppression chamber water temperature of 90°F results in a water temperature of approximately 135°F immediately following blowdown, which is below the temperature 170°F used for complete condensation. At this temperature and atmospheric pressure, the available NPSH exceeds that required by both the RHR and core spray pumps; thus, there is no dependency on containment overpressure during the accident injection phase. If both RHR loops are used for containment cooling, there is no dependency on containment overpressure for post-LOCA operations.

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS (Continued)

Experimental data indicate that excessive steam condensing loads can be avoided if the peak temperature of the pressure suppression pool is maintained below 160°F during any period of relief valve operation with sonic conditions at the discharge exit. Specifications have been placed on the envelope of reactor operating conditions so that the reactor can be depressurized in a timely manner to avoid the regime of potentially high pressure suppression chamber loadings.

Because of the large volume and thermal capacity of the pressure suppression pool, the volume and temperature normally changes very slowly and monitoring these parameters daily is sufficient to establish any temperature trends. By requiring the pressure suppression pool temperature to be continually monitored and frequently logged during periods of significant heat addition, the temperature trends will be closely followed so that appropriate action can be taken. The requirement for an external visual examination following any event where potentially high loadings could occur provides assurance that no significant damage was encountered. Particular attention should be focused on structural discontinuities in the vicinity of the relief valve discharge since these are expected to be the points of highest stress.

In addition to the limits on temperature of the suppression chamber pool water, operating procedures define the action to be taken in the event a relief valve inadvertently opens or sticks open. As a minimum this action shall include: (1) use of all available means to close the valve, (2) initiate suppression pool water cooling heat exchangers, (3) initiate reactor shutdown, and (4) if other relief valves are used to depressurize the reactor, their discharge shall be separated from that of the stuck-open relief valve to assure mixing and uniformity of energy insertion to the pool.

The suppression chamber water temperature monitoring system performs a dual function. It provides for post-accident monitoring as recommended by Regulatory Guide 1.97. This system is also designed to meet the acceptance criteria of NUREG-0661, Appendix A in monitoring average suppression chamber water temperature during normal operating conditions. Refer to Sections 3/4.3.5.3 and 3/4.6.2.1 for Limiting Conditions for Operation and Surveillance Requirements pertaining to each function.

3/4.6.3 PRIMARY CONTAINMENT ISOLATION VALVES

The OPERABILITY of the primary containment isolation valves ensures that the primary containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the primary containment atmosphere or pressurization of the containment. Primary containment isolation within the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

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. 111
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 March 6, 1985, 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;

   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; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-62 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 111, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 8, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 111

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Revise the Appendix A Technical Specifications as follows:

Remove	Insert
3/4 3-52c	3/4 3-52c
3/4 6-10a	3/4 6-10a
B 3/4 6-3	B 3/4 6-3

The changed areas are indicated by marginal lines.

TABLE 4.3.5.3-1

ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT AND INSTRUMENT NUMBER	CHANNEL CHECK	CHANNEL CALIBRATION
1. Reactor Vessel Pressure (B21-PI-R004A,B; C32-LPR-R608; and C32-PT-N005A,B)	M	R
2. Reactor Vessel Water Level (B21-LITS-N026A,B; B21-LR-R615; B21-LI-R604A,B; B21-LT-N037; and B21-LTM-N037-1)	M	R
3. Suppression Chamber Water Level (CAC-LT-2601; CAC-LI-2601-1) (CAC-LT-2602; CAC-LR-2602)	M	R
4. Suppression Chamber Water Temperature (CAC-TE-4426-2 thru 13; CAC-TY-4426-1; CAC-TR-4426-1) (CAC-TE-4426-15 thru 26; CAC-TY-4426-2; CAC-TR-4426-2)	D	R
5. Suppression Chamber Atmosphere Temperature (CAC-TE-1258-17 thru 20; CAC-TY-4426-1(2); CAC-TR-4426-1(2); C91-P602)	M	R
6. Drywell Pressure (CAC-PI-4176; CAC-PT-4176; CAC-PR-1257-1; and CAC-PT-4175)	M	R
7. Drywell Temperature (CAC-TE-1258-1 thru 13, 22, 23, 24; CAC-TY-4426-1(2); CAC-TR-4426-1(2); C91-P602)	M	R
8. Drywell Radiation (CAC-AR-1260; CAC-AQH-1260-1,2,3; CAC-AR-1261; CAC-AQH-1261-1,2,3; CAC-AR-1262; CAC-AQH-1262-1,2,3)	M	R
9. Drywell Oxygen Concentration (CAC-AT-4409-37; CAC-AI-4409-40; CAC-X-XY-4348-2; CAC-X-XY-4349-2; CAC-AR-4409-41) (CAC-AT-4410-37; CAC-AI-4410-40; CAC-X-XY-4362-2; CAC-X-XY-4363-2; CAC-AR-4410-41)	M	R

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

b. At least once per 24 hours in OPERATIONAL CONDITION 1 or 2 by verifying the suppression chamber average water temperature to be less than or equal to 95°F, except:

1. At least once per 5 minutes during testing which adds heat to the suppression chamber, by verifying the suppression chamber average water temperature to be less than or equal to 105°F.

2. At least once per hour when suppression chamber average water temperature is greater than 95°F, by verifying:

a) Suppression chamber average water temperature to be less than or equal to 110°F, and

b) THERMAL POWER to be less than or equal to 1% of RATED THERMAL POWER.

3. At least once per 30 minutes following a scram with suppression chamber average water temperature greater than 95°F, by verifying suppression chamber average water temperature less than or equal to 120°F.

c. By an external visual examination of selected emergency core cooling system suction line penetrations of the suppression chamber enclosure prior to taking the reactor from COLD SHUTDOWN after safety/relief valve operation with the suppression chamber average water temperature greater than or equal to 160°F and reactor coolant system pressure greater than 200 psig.

d. By verifying at least two suppression chamber water temperature instrumentation channels OPERABLE by performance of a:

1. CHANNEL CHECK at least once per 24 hours.

2. CHANNEL FUNCTIONAL TEST at least once per 31 days, and

3. CHANNEL CALIBRATION at least once per 18 months (550 days).

with the temperature alarm setpoint for high water temperature less than or equal to 95°F. (CAC-TE-4426-2 thru 13; CAC-TY-4426-1; CAC-TR-4426-1) (CAC-TE-4426-15 thru 26; CAC-TY-4426-2; CAC-TR-4426-2)

e. At least once per 18 months by:

1. A visual inspection of the accessible interior of the suppression chamber and exterior of the suppression chamber enclosure.

CONTAINMENT SYSTEMS

BASES

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

The specifications of this section ensure that the primary containment pressure will not exceed the calculated pressure of 49 psig during primary system blowdown from full operating pressure.

The pressure suppression pool water provides the heat sink for the reactor primary system energy release following a postulated rupture of the system. The pressure suppression chamber water volume must absorb the associated decay and structural sensible heat released during primary system blowdown from 1020 psig. Since all of the gases in the drywell are purged into the pressure suppression chamber air space during a loss of coolant accident, the pressure of the liquid must not exceed 62 psig, the suppression chamber maximum pressure. The design volume of the suppression chamber, water and air, was obtained by considering that the total volume of reactor coolant to be condensed is discharged to the suppression chamber and that the drywell volume is purged to the suppression chamber.

Using the minimum or maximum water volumes given in the specification, containment pressure during the design basis accident is approximately 49 psig, which is below the design pressure of 62 psig. Maximum water volume of 89,600 ft^3 results in a downcomer submergence of 3'4" and the minimum volume of 87,600 ft^3 results in a submergence approximately four inches less. The Monticello tests were run with a submerged length of three feet and with complete condensation. Thus, with respect to the downcomer submergence, this specification is adequate. The maximum temperature at the end of the blowdown test during the Humboldt Bay and Bodega Bay tests was 170°F, and this is conservatively taken to be the limit for complete condensation of the reactor coolant, although condensation would occur for temperatures above 170°F.

When it is necessary to make the suppression chamber inoperable, this shall only be done as provided in Specification 3.5.3.3.

Under full power operation conditions, blowdown from an initial suppression chamber water temperature of 90°F results in a water temperature of approximately 135°F immediately following blowdown, which is below the temperature 170°F used for complete condensation. At this temperature and atmospheric pressure, the available NPSH exceeds that required by both the RHR and core spray pumps; thus, there is no dependency on containment overpressure during the accident injection phase. If both RHR loops are used for containment cooling, there is no dependency on containment overpressure for post-LOCA operations.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 85 TO FACILITY LICENSE NO. DPR-71 AND

AMENDMENT NO. 111 TO FACILITY LICENSE NO. DPR-62

CAROLINA POWER & LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

1.0 INTRODUCTION

By letter dated March 6, 1985, the Carolina Power & Light Company (CP&L, the licensee) requested a change to the limiting conditions for operation (LCOs) for Brunswick Steam Electric Plant, Units 1 and 2 as set forth in the Technical Specifications (TS) of Facility Operating License Nos. DPR-71 and DPR-62. The requested change for Unit 1 would revise TS Tables 3.3.5.3-1 and 4.3.5.3-1 (Accident Monitoring Instrumentation) and Section 3/4.6.2.1 (Suppression Chamber) to incorporate the inclusion of a suppression pool temperature monitoring system (SPTMS) to meet the acceptance criteria of NUREG-0661, Appendix A. In addition, TS sections 3/4.6.2.1 and 3/4.6.4.1 (Drywell-Suppression Chamber Vacuum Breakers) have been modified to more closely conform to the guidance of BWR-4 Standard Technical Specifications (STS), NUREG-0123. The channel check for item 4.3.5.3-1.4 would be changed from monthly to daily for Units 1 and 2 to provide consistency with TS 4.6.2.1.d.1. TS 4.6.2.1.b.2.b would be changed to eliminate redundancy in that Surveillance Requirement for Unit 2.

2.0 DISCUSSION

The requested TS change reflects the new suppression pool temperature monitoring system being installed on Brunswick Unit 2 during the current refueling outage. This system consists of 24 Class 1E resistance temperature detectors (RTDs) installed about the torus at designated locations to provide accurate measurement of the average pool water temperature. These new RTDs are split into two totally independent channels consisting of 12 RTDs per channel. All new RTDs are Class 1E qualified, seismically analyzed, and the two suppression pool temperature monitoring divisions meet the acceptance criteria of Regulatory Guide 1.97, NUREG-0661, and NUREG-0783. The new suppression pool temperature monitoring system also serves as the accident monitoring instrumentation for suppression chamber water temperature. Tables 3.3.5.3-1 and 4.3.5.3-1 have been changed to reflect the new instrument numbers. A footnote has been added in Table 3.3.5.3-1 to ensure that the dual function of the system is apparent to operations personnel.

In addition, TS section 3/4.6.2 has been rewritten to make the section more closely conform to the format of the Standard Technical Specifications A Limiting Condition for Operation and new action items have been added to ensure appropriate requirements exist for various plant conditions. The LCO and Surveillance Requirements pertaining to suppression chamber leakage have been moved from Section 3/4.6.4 to Section 3/4.6.2, consistent with guidance of the STS.

The above proposed modifications are submitted in response to the staff requested dated March 19, 1984 which included a Safety Evaluation of the Mark I Long Term Containment Program for the Brunswick facilities. In that Safety Evaluation, the staff concluded that containment modifications made have restored the original design safety margin to the Mark I Containment at the Brunswick plant. That Safety Evaluation is incorporated by reference.

The submittal of these changes has provided an opportunity for the licensee to reformat TS Section 3/4.6.2 in order to make the section more closely conform to the format of the BWR-4 STS. An LCO and new action items have been added to ensure appropriate requirements exist for various plant conditions. The LCO and Surveillance Requirements pertaining to suppression chamber leakage have been moved from Section 3/4.6.4 to Section 3/4.6.2, consistent with guidance of the BWR-4 STS.

Surveillance Requirement 4.6.2.1.b.2.b contains a 24-hour time restriction for suppression chamber temperature in excess of 95°F while in Operating Conditions 1 and 2. This requirement is also covered by TS Section 3/4/6.2, Action Statement b. Restating the 24-hour restriction is redundant and may mislead the operator. Therefore, the time restriction has been removed from Surveillance Requirement 4.6.2.1.b.2.b in the Brunswick Unit 2 TS.

In addition, the channel check for Item 4.3.5.3-1.4 is currently performed on a monthly basis. This requirement is being changed to daily in order to be consistent with TS 4.6.2.1.d.1. A similar change is being made in the Brunswick TS to provide consistency. Further, a footnote has been added in Table 3.3.5.3-1 to ensure that the dual function of the system is readily apparent to operations personnel.

3.0 EVALUATION

One of the requested changes was necessary to properly reflect the presence of the new suppression pool temperature monitoring system. This new system meets the acceptance criteria of Regulatory Guide 1.97, NUREG-0661 and NUREG-0783. The SPTMS, which will be installed during the upcoming refueling outage, was reviewed and found acceptable as part of the Mark I Long Term implementation program discussed in the Plant Unique Analysis Report (PUAR) in the March 19, 1984 Safety Evaluation. We find the proposed SPTMS TS consistent with the PUAR analyses and therefore, acceptable.

The licensee also proposed the following additional changes to the TS:

1. The channel check for Item 4.3.5.3-1.4 is proposed to be performed daily instead of monthly to be consistent with Specification 4.6.2.1.d.1. This TS change is more restrictive than the original TS and, therefore, we find it acceptable.

2. The Drywell Suppression Chamber Vacuum Breakers TS 3/4.6.2.1 and 3/4.6.4.1 have been modified to conform to the Guidance of the BWR-4 STS. These proposed changes are editorial in nature and, therefore, are acceptable.

3. A new LCO 3.6.2.1.a.2.b and a new action statement have been added. A corresponding Surveillance Requirement 4.6.2.1.b.2 has also been incorporated. These new additions have been incorporated in the TS to ensure appropriate requirements exist when the suppression pool temperature reaches 110°F, are consistent with the TS approved for Unit 1 based on the March 19, 1984 Safety Evaluation and the BWR-4 STS, and therefore are acceptable.

4. The LCO and Surveillance Requirements pertaining to suppression chamber leakage have been moved from Section 3/4.6.4 to Section 3/4.6.2, consistent with the BWR-4 STS. This change is editorial in nature and, therefore, is acceptable.

The staff has reviewed the proposed changes as discussed above and has concluded that the proposed changes are acceptable. Therefore, the staff concludes that the proposed amendments are acceptable.

4.0 ENVIRONMENTAL CONSIDERATIONS

The amendments involve a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendments meet 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 need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such

activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: F. Eltawila and M. Grotenhuis

Dated: July 8, 1985