

August 12, 1986

Docket Nos. 50-325/324

DCB 614

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

Dear Mr. Utley:

The Commission has issued the enclosed Amendment Nos. 99 and 128 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 5, 1986, as supplemented March 28, 1986.

The amendments change the Technical Specifications (TS) by modifying the limiting conditions for operation for the chlorine detection system to reflect modifications to the control room isolation and alarm features of the chlorine detection system at the facility.

A copy of the Safety Evaluation is also enclosed. Notice of issuance will be included in the Commission's Bi-Weekly Federal Register Notice.

Sincerely,

/s/

Ernest D. Sylvester, Project Manager  
BWR Project Directorate #2  
Division of BWR Licensing

Enclosures:

1. Amendment No. 99 to License No. DPR-71
2. Amendment No. 128 to License No. DPR-62
3. Safety Evaluation

cc w/enclosures:  
See next page

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Mr. E. E. Utley  
Carolina Power & Light Company

Brunswick Steam Electric Plant  
Units 1 and 2

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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. 99  
License No. DPR-71

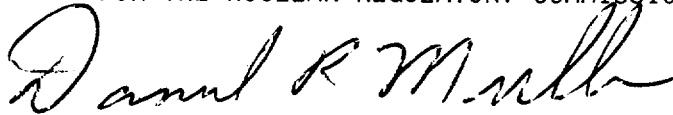
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Carolina Power & Light Company (the licensee) dated March 5, 1986, as supplemented March 28, 1986, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the 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. 99, 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

A handwritten signature in cursive script, reading "Daniel R. Muller".

Daniel R. Muller, Director  
BWR Project Directorate #2  
Division of BWR Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 12, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 99

FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Pages

3/4 3-54

B3/4 3-3

INSTRUMENTATIONCHLORINE DETECTION SYSTEMLIMITING CONDITION FOR OPERATION

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3.3.5.5 A chlorine detection system, with one detection subsystem located at the Control Room air intake (1-AT-2977, 2-AT-2977) and one detection subsystem located near the chlorine tank car siding (1-AT-2979, 2-AT-2979), shall be OPERABLE with the alarm/trip setpoint adjusted to actuate at a chlorine concentration of less than or equal to 5 ppm.

APPLICABILITY: OPERATIONAL CONDITIONS 1\*, 2\*, and 3\*.

ACTION:

- a. With one chlorine detector of either or both subsystem(s) inoperable, restore the inoperable detection subsystem to OPERABLE status within 7 days or, within the next 6 hours, isolate the Control Room and operate in the recirculation mode.
- b. With both chlorine detectors of either subsystem inoperable, within one hour isolate the Control Room and operate in the recirculation mode.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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4.3.5.5 Each of the above required chlorine detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

\*With the chlorine tank car within the Exclusion Area.

INSTRUMENTATIONBASESMONITORING 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 system 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 operation will be initiated in the recirculation mode to provide the required protection. The detection system required by this specification is consistent with the Brunswick Steam Electric Plant's position on NRC TMI ACTION PLAN ITEM III.D.3.4, Control Room Habitability. Regulatory Guide 1.95 "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release" was used as a source of guidance regarding the detection system design.



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. 128  
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 5, 1986, as supplemented March 28, 1986, 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. 128, 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

A handwritten signature in cursive script, reading "Daniel R. Muller".

Daniel R. Muller, Director  
BWR Project Directorate #2  
Division of BWR Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 12, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 128

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Pages

3/4 3-54

B3/4 3-3

INSTRUMENTATION

CHLORINE DETECTION SYSTEM

LIMITING CONDITION FOR OPERATION

---

3.3.5.5 A chlorine detection system, with one detection subsystem located at the Control Room air intake (1-AT-2977, 2-AT-2977) and one detection subsystem located near the chlorine tank car siding (1-AT-2979, 2-AT-2979), shall be OPERABLE with the alarm/trip setpoint adjusted to actuate at a chlorine concentration of less than or equal to 5 ppm.

APPLICABILITY: OPERATIONAL CONDITIONS 1\*, 2\*, and 3\*.

ACTION:

- a. With one chlorine detector of either or both subsystem(s) inoperable, restore the inoperable detection subsystem to OPERABLE status within 7 days or, within the next 6 hours, isolate the Control Room and operate in the recirculation mode.
- b. With both chlorine detectors of either subsystem inoperable, within one hour isolate the Control Room and operate in the recirculation mode.
- c. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

---

4.3.5.5 Each of the above required chlorine detection system subsystems shall be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at least once per 31 days and a CHANNEL CALIBRATION at least once per 18 months.

\*With the chlorine tank car within the Exclusion Area.

INSTRUMENTATIONBASESMONITORING 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 Criterion 19 of CFR 50.

3/4.3.5.3 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the post-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 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.

3/4.3.5.4 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 system 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 operation will be initiated in the recirculation mode to provide the required protection. The detection system required by this specification is consistent with the Brunswick Steam Electric Plant's position on NRC TMI ACTION PLAN ITEM III.D.3.4, Control Room Habitability. Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release" was used as a source of guidance regarding the detection system design.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 99 AND 128

TO FACILITY OPERATING LICENSE NOS. DPR-71 AND DPR-62

CAROLINA POWER AND LIGHT COMPANY

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2

DOCKET NOS. 50-325 AND 50-324

1.0 INTRODUCTION

By letter dated March 5, 1986, as supplemented March 28, 1986 Carolina Power and Light Company transmitted a Technical Specification change request to Appendix A to operating Licenses DPR-71 and DPR-62. The licensee proposed to modify the Limiting Condition for Operation (LCO) for the chlorine detection system (Brunswick Technical Specification Section 3/4.3.5.5 and its corresponding Bases Section). The proposed change reflects some recent modifications that have been made to the control room isolation and alarm features of the chlorine detection system at Brunswick Units 1 and 2.

2.0 EVALUATION

The Brunswick chlorine detection system consists of two independent subsystems, each containing two redundant chlorine detectors. These detectors are located at the control room air intake (1-AT-2977 and 2-AT-2977), and at the chlorine tank car siding (1-AT-2979 and 2-AT-2979). Detection of high chlorine concentrations (5 ppm of chlorine) by any of these detectors will actuate an alarm in the control room and automatically isolate the control room outside makeup air intake.

Neither the two subsystems, nor the two redundant chlorine detectors in each subsystem, are specifically identified in the current LCO. Prior to the modification, the chlorine detectors installed at the tank car siding were not wired to detect a chlorine release. Hence, they could neither alarm nor isolate the control room in the event of a chlorine release. The modification involved wiring the detectors such that they could provide alarm and isolation signals to the control room. The proposed amendment specifies the functional requirements for the chlorine detectors reflecting the above modifications made to the chlorine detection system.

Specifically, the proposed LCO action statement stipulates that with one chlorine detector of either or both subsystem(s) inoperable, the licensee is required to restore the inoperable chlorine detector to operational status within 7 days. If the detector is not operational after 7 days, then, within the next 6 hours, the licensee should isolate the control room and operate the control room air cleanup system in the recirculation mode. This requirement is consistent with GE BWR/4 Standard Technical Specifications.

The need to have remote chlorine detection and a related control room alarm and automatic control room isolation is based on the amount of onsite chlorine storage (55-ton capacity rail tank) and the distance between the chlorine tank and the control room outside air intake (450 feet) in accordance with the guidance provided in Regulatory Guide 1.95, Rev. 1, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release". Hence, the LCO applies to all operational conditions whenever a chlorine tank car is within the Brunswick Exclusion Area.

### 3.0 EVALUATION SUMMARY

On the basis of the above evaluation, we find that the requested amendment is an improvement in the functional requirements imposed on the installed as-built configuration of the chlorine detection system. The basis for our acceptance is that the proposed amendment is consistent with (1) the previously evaluated chlorine detection system described in the Brunswick FSAR, (2) the guidelines in Regulatory Guide 1.95, "Protection of Nuclear Power Plant Control Room Operators Against Accidental Chlorine Release", (3) the requirements in NUREG-0737, Item III.D.3.4, "Control Room Habitability Requirements", and (4) GE BWR/4 Standard Technical Specifications.

### 4.0 ENVIRONMENTAL CONSIDERATIONS

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of 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 Contributor: Jay Lee

Dated: August 12, 1986