50-325
50-324

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 6, 1998

Mr. C. S. Hinnant, Vice President
Carolina Power & Light Company
Brunswick Steam Electric Plant
Post Office Box 10429
Southport, North Carolina 28461

SUBJECT: ISSUANCE OF AMENDMENT NO. 191 TO FACILITY OPERATING LICENSE NO. DPR-71 AND AMENDMENT NO. 222 TO FACILITY OPERATING LICENSE NO. DPR-62 REVISING TECHNICAL SPECIFICATIONS ASSOCIATED WITH THE CONTROL ROOM EMERGENCY VENTILATION SYSTEM - BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 (TAC NOS. MA0112 AND MA0113)

Dear Mr. Hinnant:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 191 to Facility Operating License No. DPR-71 and Amendment No. 222 to Facility Operating License No. DPR-62 for Brunswick Steam Electric Plant, Units 1 and 2. The amendments consist of changes to the Technical Specifications (TS) and associated Bases in response to your application dated November 6, 1997, as supplemented by your letter dated January 28, 1998.

The amendments are approved on a one-time-only basis during the period of February 6, 1998, to May 1, 1998, to support modifications upgrading the Control Room Emergency Ventilation system (CREVS). The modifications include improvements to ductwork supports stemming from the Unresolved Safety Issue (USI) A-46 program ("Seismic Adequacy of Mechanical and Electrical Equipment") and upgrades of the three air conditioning condensing units from non-safety-related to safety-related classification by complete replacement.

OFC 1 1/1

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's bi-weekly Federal Register Notice.

Sincerely,

Original signed by:

David C. Trimble, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-325
and 50-324

Enclosures:
1. Amendment No. 191 to License No. DPR-71
2. Amendment No. 222 to License No. DPR-62
3. Safety Evaluation

cc w/enclosures: See next page
FILENAME - G:\BRUNSWIC\BRA0112.AMD 250#2 Encl 1&3 *See previous concurrence

PM:PDII-1	LA:PDII-1	HHFB*	SPLB	OGC	PD:PDII-1	
DTrimble	EDunnington E-D	SRubin	LMarsh	RBachmann	WMDean	
1/30/98	1/30/98	1/30/98	2/3/98	2/4/98	2/6/98	
Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	

OFFICIAL RECORD COPY

cc:

Mr. William D. Johnson
Vice President and Senior Counsel
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Mr. Jerry W. Jones, Chairman
Brunswick County Board of Commissioners
Post Office Box 249
Bolivia, North Carolina 28422

Resident Inspector
U.S. Nuclear Regulatory Commission
8470 River Road
Southport, North Carolina 28461

Regional Administrator, Region II
U.S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303

Mr. Mel Fry, Acting Director
Division of Radiation Protection
N.C. Department of Environment,
Health and Natural Resources
3825 Barrett Dr.
Raleigh, North Carolina 27609-7721

Mr. J. J. Lyash
Plant Manager
Carolina Power & Light Company
Brunswick Steam Electric Plant
Post Office Box 10429
Southport, North Carolina 28461

Public Service Commission
State of South Carolina
Post Office Drawer 11649
Columbia, South Carolina 29211

Mr. Milton Shymlock
U. S. Nuclear Regulatory Commission
Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303

Ms. Karen E. Long
Assistant Attorney General
State of North Carolina
Post Office Box 629
Raleigh, North Carolina 27602

Mr. Robert P. Gruber
Executive Director
Public Staff - NCUC
Post Office Box 29520
Raleigh, North Carolina 27626-0520

Director
Site Operations
Brunswick Steam Electric Plant
Post Office Box 10429
Southport, North Carolina 28461

Mr. William H. Crowe, Mayor
City of Southport
201 East Moore Street
Southport, North Carolina 28461

Mr. Dan E. Summers
Emergency Management Coordinator
New Hanover County Department of
Emergency Management
Post Office Box 1525
Wilmington, North Carolina 28402

Ms. D. B. Alexander
Manager
Performance Evaluation and
Regulatory Affairs
Carolina Power & Light Company
412 S. Wilmington Street
Raleigh, North Carolina 27601

Mr. K. R. Jury
Manager - Regulatory Affairs
Carolina Power & Light Company
Post Office Box 10429
Southport, NC 28461-0429

AMENDMENT NO. 191 TO FACILITY OPERATING LICENSE NO. DPR-71 - BRUNSWICK, UNIT 1 AND AMENDMENT NO. 222 TO FACILITY OPERATING LICENSE NO. DPR-62 - BRUNSWICK, UNIT 2

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cc: Brunswick Service List

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-325

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 191
License No. DPR-71

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

   A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated November 6, 1997, as supplemented by letter dated January 28, 1998, 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. 191, are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

William M. Dean, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 6, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 191

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.

Remove Pages	Insert Pages
3/4 3-64	3/4 3-64
3/4 7-3	3/4 7-3
3/4 7-3a	3/4 7-3a
B3/4 3-3a	B3/4 3-3a
B3/4 3-3b	B3/4 3-3b
B3/4 3-3c	B3/4 3-3c
B3/4 3-3d	B3/4 3-3d
B3/4 7-1c	B3/4 7-1c

INSTRUMENTATION

CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.5.5 The Control Room Emergency Ventilation System instrumentation shown in Table 3.3.5.5-1 shall be OPERABLE.* |

APPLICABILITY: As shown in Table 3.3.5.5-1.

ACTION:

a. With one or more detectors inoperable, take the ACTION required by Table 3.3.5.5-1.

b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.5.5 Each of the above required control room emergency ventilation instruments shall be demonstrated OPERABLE by performance of the testing at the frequency required by Table 4.3.5.5-1.

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* The Control Room Emergency Ventilation System (CREVS) instrumentation may be considered OPERABLE, consistent with the conditions specified in footnote *** to Technical Specification 3.7.2, during the time period from February 6, 1998, to May 1, 1998. In this configuration, the system is not considered to be in an ACTION statement for the purposes of Technical Specification 3.0.4. |

3/4.7.2 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.2 The Control Room Emergency Ventilation System shall be OPERABLE*** with:

a. An OPERABLE Radiation/Smoke Protection Mode consisting of two OPERABLE control room emergency filtration subsystems.

b. An OPERABLE Chlorine Protection Mode.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, *, and **

ACTION:

a. In OPERATIONAL CONDITIONS 1 and 2:

1. With one control room emergency filtration unit inoperable, restore the inoperable control room emergency filtration unit to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With both control room emergency filtration units inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 3:

1. With one control room emergency filtration unit inoperable, restore the inoperable control room emergency filtration unit to OPERABLE status within 7 days or be in COLD SHUTDOWN within the following 24 hours.

2. With both control room emergency filtration units inoperable, be in COLD SHUTDOWN within the following 24 hours.

---

* During movement of irradiated fuel assemblies in the secondary containment.

** The Chlorine Protection Mode is required to be OPERABLE at all times when the chlorine tank car is within the exclusion area.

*** The Control Room Emergency Ventilation System (CREVS) ductwork may be considered OPERABLE, for one or more periods totaling up to 16 days, using temporary ductwork barriers constructed to preserve the leakage characteristics of the control room pressure boundary under normal operational conditions, during the implementation of the Control Room Air Conditioning System replacement modification. The chlorine tank car shall be removed from the exclusion area while temporary ductwork barriers are being used. The CREVS may also be considered OPERABLE up to 9 weeks with temporary condensing units and associated piping and controls installed. Two of these units shall be functional during normal operational conditions. This is applicable during the time period from February 6, 1998, to May 1, 1998. In this configuration, the system is not considered to be in an ACTION statement for the purposes of Technical Specification 3.0.4.

3/4.7.2 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued):

c. In OPERATIONAL CONDITIONS 4, 5, and *:

1. With one control room emergency filtration unit inoperable, restore the inoperable control room emergency filtration unit to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE control building emergency filtration unit in the Radiation/Smoke Protection Mode.

2. With both control room emergency filtration units inoperable, suspend all operations involving CORE ALTERATIONS, handling of irradiated fuel in secondary containment, and operations with a potential for draining the reactor vessel.

d. With the Chlorine Protection Mode inoperable, within 8 hours remove the chlorine tank car from the exclusion area. If the tank car physically can not be removed from the exclusion area, take the ACTIONS required in items a.2, b.2, and c.2 above.

SURVEILLANCE REQUIREMENTS

4.7.2 The control room emergency ventilation system shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating flow, from the control room, through the HEPA filter and charcoal adsorbers in each filtration unit and verifying that the system operates for at least 15 minutes.

b. At least once per 18 months or (1) after any structual maintenance on the HEPA filter or charcoal adsorber housing, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria of > 99 percent efficiency using the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 1, July 1976, and the system flow rate is 2000 cfm ± 10%.

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Background (Continued)

the Service Water Building, or a slow leak lasting for an extended period of time), and an external smoke event. These events form the basis for the design of the Control Room Emergency Ventilation (CREVS) function of the CBHVAC System.

During a radiation event, the CBHVAC System is required to automatically isolate and enter the Radiation/Smoke Protection Mode on a Control Room Intake High Radiation signal from the Area Radiation Monitoring System. Upon receipt of a high radiation signal, the CBHVAC System is automatically realigned to the emergency mode of operation. The normal fresh air inlet closes, and, at approximately the same time, the emergency air filtration units begin operation, recirculating control room air and providing filtered makeup air to minimize contamination build-up and provide positive pressure in the Control Room Envelope. The CBHVAC System responds to an external smoke event in the same manner as it does for a radiation event.

In the event of a chlorine release, the CBHVAC System enters a full recirculation mode (Chlorine Protection Mode), with no outdoor air intake. The emergency filtration trains do not start, since they do not effectively remove chlorine and may be damaged by the presence of chlorine. Protection for chlorine gas events "overrides" any concurrent, ongoing, and any subsequent radiation or smoke initiation signals. The override design offers protection to operations personnel in the Control Room by providing protection against potentially fatal chlorine gas releases. This protection is required any time the chlorine tank car is within the exclusion area.

The CREVS is designed to meet the criteria of General Design Criterion (GDC) 19 (Reference 1). In addition, the system is designed using the guidance of Regulatory Guide 1.95, Revision 1 (Reference 2). Commitments have also been made to design the radiation protection function of the CBHVAC System to meet the single failure criteria described in IEEE 279-1971, and the chlorine detection and isolation logic to single failure criteria, both with approved exceptions (Reference 6, Section 3.6).

ACTION Statements 90, 91, and 92 require isolating the control room and operating the CREVS in either the Chlorine Protection Mode or the Radiation/Smoke Protection Mode, as appropriate. These ACTIONS presume that the CREVS is OPERABLE. During implementation of the Control Room Air Conditioning System replacement modification, the CREVS instrumentation may be considered OPERABLE, with a temporary barrier installed in the duct, or during use of temporary condensing units for the Control Room Air Conditioning System, as described in Bases 3/4.7.2.

LCO

Operability of the CREVS instrumentation ensures that the control room operators will be protected from hazards external to the control room, consistent with the assumptions in the various analyses, through the prompt detection and initiation of the necessary protective actions of the system.

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Applicability

The instrumentation associated with the Radiation/Smoke Protection Mode of the CREVS is required to be operable to automatically detect and initiate the Radiation/Smoke Protection Mode of operation during times when the potential exists for events which may result in the release of radioactive materials to the environment, up to and including design basis accidents. The specific radiological release events for which the system must provide a mitigating function are discussed in the bases of Technical Specification 3.7.2 and DBD-37 (Reference 6).

The instrumentation associated with the Chlorine Protection Mode of the CREVS is required to be OPERABLE to automatically detect and initiate the internal recirculation mode of operation any time the chlorine tank car is within the exclusion area.

The instrumentation associated with the External Smoke Protection function of the CREVS is required to be OPERABLE to automatically detect and initiate the Radiation/Smoke Protection Mode of operation during the same conditions as the Radiation Protection function. This ensures that habitability of the control room is maintained during times when a radiological release could potentially occur.

Actions

Radiation Protection

Two control room air inlet radiation detectors measure radiation levels in the inlet ducting of the main control room. A high radiation level automatically initiates the radiation protection mode of operation. Both channels are required to be OPERABLE to ensure that no single instrument failure can preclude the initiation of the radiation protection function of the control room emergency ventilation system. The loss of a single detector means that the CREVS reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced or lost system capability. The 7 day out of service time is based on the low probability of a design basis accident and a single failure occurring during this time period, and the capability of the remaining instrumentation subsystem to provide the required isolation and is consistent with the out of service times allowed for loss of redundancy at the system level.

The loss of both detectors means that the automatic detection/isolation function of the radiation protection system is lost. Placing the CBHVAC System in the Radiation/Smoke Protection Mode is a suitable compensatory action to ensure that the automatic radiation protection function is not lost.

Chlorine Protection

The chlorine detection/isolation instrumentation is organized into two trip systems, with one trip system (remote) located near the chlorine tank car and the other located in the control building intake plenum (local). Each trip system contains two trip subsystems, with two detectors (one from each

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Actions (Continued)

division) in each trip subsystem. Both trip subsystems in each trip system are required to be OPERABLE any time the chlorine tank car is within the exclusion area to ensure adequate protection for the control room under postulated toxic gas events.

The chlorine detectors in each trip system are arranged in a one-out-of-two-taken-twice configuration. One detector from each of the trip subsystems in a trip system must actuate to initiate the automatic detection/isolation function. The loss of a single chlorine detector means that the CBEVS reliability is reduced because a single failure in the remaining OPERABLE trip subsystem detector could result in reduced or lost system capability. The 7 day out of service time is based on the low probability of a design basis chlorine gas event and a single active failure occurring during this time period, and the capability of the remaining detectors to provide the required isolation capabilities. The out of service time is consistent with the out of service time allowed for loss of redundancy at the system level.

The loss of both detectors in any trip subsystem means that the automatic protection function of the chlorine detection/isolation system is lost. Placing the CBHVAC System in the Chlorine Protection Mode, through the use of control switches to close the appropriate dampers, ensures that the control room envelope is protected, while at the same time allowing a valid radiation or smoke signal to initiate appropriate protective actions. Operation in this mode is not limited in duration provided that either trip system remains functional to ensure that the override function of the Chlorine Protection Mode is not lost.

Smoke Protection

Automatic detection/isolation of the control room envelope in response to an external smoke event is dependent on the response of ionization detectors in Zones 4 and 5 of the Control Building. Multiple detectors in each of the zones provide the detection/isolation capability; however, detection by one detector in both zones is required to initiate the isolation function.

Having less than two detectors OPERABLE in a zone means the system reliability is reduced due to the loss of redundant detection capability in that zone. Allowing continued operation for up to 7 days with less than two OPERABLE detectors in either or both zones is an acceptable out of service time considering the low probability of an external smoke event and the failure of the remaining detector during this time period, and the capability of the remaining instrumentation to provide the required isolation. The out of service time is consistent with the out of service times allowed for loss of redundancy at the system level.

With less than one detector OPERABLE in either or both zones, the automatic detection/isolation function of the external smoke protection system is lost. Placing the CBHVAC System in the Radiation/Smoke Protection Mode is a suitable compensatory action to ensure that the automatic external smoke protection function is not lost.

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Surveillances

Radiation Protection

Performance of the CHANNEL CHECK once every day ensures that a gross failure of the instrumentation has not occurred; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The CHANNEL CHECK frequency is consistent with that performed for other radiation monitors with isolation functions.

The CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. The Control Building HVAC DBD (Reference 6) defines the specific actions to be satisfied by the radiation actuation instrumentation. The quarterly frequency of the CHANNEL FUNCTIONAL TEST was established based on Reference 7 and is consistent with that performed for other radiation monitors with isolation functions.

The CHANNEL CALIBRATION verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to ensure consistency with the system assumptions (Reference 5). The frequency of the calibration is consistent with the frequency of calibration of other radiation monitors with isolation functions.

Chlorine Protection

The CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. The Control Building HVAC DBD (Reference 6) defines the specific actions to be satisfied by the chlorine isolation instrumentation. The monthly frequency of the CHANNEL FUNCTIONAL TEST is consistent with the testing frequencies performed by other utilities with this type of instrumentation.

The CHANNEL CALIBRATION of the trip units provides a check of the instrument loop and the sensor when the sensor is replaced. The test verifies the calibration of the existing sensor prior to removal and performs an installation calibration of the new sensor, including a complete channel calibration with the new sensor installed, to verify the channel responds to the measured parameter within the necessary range and accuracy. The CHANNEL CALIBRATION leaves the channel adjusted to ensure consistency with the system assumptions (Reference 6).

The chlorine detectors use an amperometric sensor consisting of a platinum cathode and silver anode joined by an electrolytic salt bridge, all enclosed in a permeable membrane. This design eliminates the majority of the maintenance required on previous detectors. The detectors have been in service at other facilities and have provided reliable service. The annual replacement and calibration are based on a manufacturer recommendation. The adequacy of the replacement interval has been confirmed through discussions with other utilities.

Smoke Protection

The CHANNEL FUNCTIONAL TEST for the Smoke Protection instrumentation is consistent with the testing performed in accordance with the existing Fire Detection Instrumentation requirements. CHANNEL CALIBRATION is performed in accordance with the requirements of the CREVS specification (4.7.2).

3/4.7.2 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

Background

One of the principal design objectives of the Control Building Heating, Ventilation and Air Conditioning (CBHVAC) System is to permit continuous occupancy of the Control Room Emergency Zone under normal operating conditions and under the postulated design basis events throughout the life of the plant. The Control Building HVAC System must function to provide protection to the operators for three type events: a radiation event, up to and including a Design Basis Accident (e.g., Main Steam Line Break [MSLB] Accident, Refueling Accident, Control Rod Drop Accident, or Loss of Coolant Accident [LOCA]), a toxic gas event (complete rupture of the 55 ton chlorine tank car located near the Service Water Building, or a slow leak lasting for an extended period of time), and an external smoke event. These events form the basis for the design of the Control Room Emergency Ventilation (CREVS) function of the CBHVAC System.

The CREVS is designed to meet General Design Criterion (GDC) 19 (Reference 1). In addition, the system is designed using the guidance of Regulatory Guide 1.95, Revision 1 (Reference 2). Commitments have also been made to design the radiation protection function of the CBHVAC System to meet the single failure criteria described in IEEE 279-1971, and the chlorine detection and isolation logic to single failure criteria, both with approved exceptions (Reference 12, Section 3.6).

During implementation of the Control Room Air Conditioning System replacement modification, the CREVS may be considered OPERABLE with a temporary barrier installed in the duct as part of the control room pressure boundary. The temporary ductwork barriers are required to be constructed to preserve the leakage characteristics of the control room pressure boundary; however, these temporary barriers are not required to be seismically qualified. In addition, adjacent ductwork may be considered OPERABLE if not seismically qualified while work is actively in progress.

Also, during the installation of the Control Room Air Conditioning System replacement modification, the temporary condensing units which support the operability of the Control Room HVAC System may be considered OPERABLE as long as two of the three units are functional, even though they are not protected from severe natural phenomena such as seismic events and tornadoes, or radioactive sabotage. Single failure criteria do not apply to the Control Room Air Conditioning System during this time.

LCO

Operability of the CREVS ensures that the control room will remain habitable for operations personnel during and following all credible hazard event scenarios external to the control room, consistent with the assumptions in the various analyses. Two redundant subsystems of the CREVS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disables the other subsystem. The CREVS is considered OPERABLE when the individual components necessary to control operator exposure are operable in both subsystems. For the Radiation/Smoke Protection Mode, a subsystem is considered OPERABLE when its associated:

1. Fan is OPERABLE,

2. HEPA filter and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions, and

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

CAROLINA POWER & LIGHT COMPANY, et al.

DOCKET NO. 50-324

BRUNSWICK STEAM ELECTRIC PLANT, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 222
License No. DPR-62

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

   A. The application for amendment filed by Carolina Power & Light Company (the licensee), dated November 6, 1997, as supplemented by letter dated January 28, 1998, 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. 222, are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

William M. Dean, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 6, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 222

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.

Remove Pages	Insert Pages
3/4 3-64	3/4 3-64
3/4 7-3	3/4 7-3
3/4 7-3a	3/4 7-3a
B3/4 3-3a	B3/4 3-3a
B3/4 3-3b	B3/4 3-3b
B3/4 3-3c	B3/4 3-3c
B3/4 3-3d	B3/4 3-3d
B3/4 7-1c	B3/4 7-1c

INSTRUMENTATION

CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.3.5.5 The Control Room Emergency Ventilation System instrumentation shown in Table 3.3.5.5-1 shall be OPERABLE.*

APPLICABILITY: As shown in Table 3.3.5.5-1.

ACTION:

a. With one or more detectors inoperable, take the ACTION required by Table 3.3.5.5-1.

b. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.5.5 Each of the above required control room emergency ventilation instruments shall be demonstrated OPERABLE by performance of the testing at the frequency required by Table 4.3.5.5-1.

* The Control Room Emergency Ventilation System (CREVS) instrumentation may be considered OPERABLE, consistent with the conditions specified in footnote *** to Technical Specification 3.7.2, during the time period from February 6, 1998, to May 1, 1998. In this configuration, the CREVS instrumentation is not considered to be in an ACTION statement for the purposes of Technical Specification 3.0.4.

3/4.7.2 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.2 The Control Room Emergency Ventilation System shall be OPERABLE*** with:

a. An OPERABLE Radiation/Smoke Protection Mode consisting of two OPERABLE control room emergency filtration subsystems.

b. An OPERABLE Chlorine Protection Mode.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, 3, 4, 5, *, and **

ACTION:

a. In OPERATIONAL CONDITIONS 1 and 2:

1. With one control room emergency filtration unit inoperable, restore the inoperable control room emergency filtration unit to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

2. With both control room emergency filtration units inoperable, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. In OPERATIONAL CONDITION 3:

1. With one control room emergency filtration unit inoperable, restore the inoperable control room emergency filtration unit to OPERABLE status within 7 days or be in COLD SHUTDOWN within the following 24 hours.

2. With both control room emergency filtration units inoperable, be in COLD SHUTDOWN within the following 24 hours.

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* During movement of irradiated fuel assemblies in the secondary containment.

** The Chlorine Protection Mode is required to be OPERABLE at all times when the chlorine tank car is within the exclusion area.

*** The Control Room Emergency Ventilation System (CREVS) ductwork may be considered OPERABLE, for one or more periods totaling up to 16 days, using temporary ductwork barriers constructed to preserve the leakage characteristics of the control room pressure boundary under normal operational conditions, during the implementation of the Control Room Air Conditioning System replacement modification. The chlorine tank car shall be removed from the exclusion area while temporary ductwork barriers are being used. The CREVS may also be considered OPERABLE up to 9 weeks with temporary condensing units and associated piping and controls installed. Two of these units shall be functional during normal operational conditions. This is applicable during the time period from February 6, 1998, to May 1, 1998. In this configuration, the system is not considered to be in an ACTION statement for the purposes of Technical Specification 3.0.4.

3/4.7.2 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued):

c. In OPERATIONAL CONDITIONS 4, 5, and *:

1. With one control room emergency filtration unit inoperable, restore the inoperable control room emergency filtration unit to OPERABLE status within 7 days or initiate and maintain operation of the remaining OPERABLE control building emergency filtration unit in the Radiation/Smoke Protection Mode.

2. With both control room emergency filtration units inoperable, suspend all operations involving CORE ALTERATIONS, handling of irradiated fuel in secondary containment, and operations with a potential for draining the reactor vessel.

d. With the Chlorine Protection Mode inoperable, within 8 hours remove the chlorine tank car from the exclusion area. If the tank car physically can not be removed from the exclusion area, take the ACTIONS required in items a.2, b.2, and c.2 above.

SURVEILLANCE REQUIREMENTS

4.7.2 The control room emergency ventilation system shall be demonstrated OPERABLE:

a. At least once per 31 days by initiating flow, from the control room, through the HEPA filter and charcoal adsorbers in each filtration unit and verifying that the system operates for at least 15 minutes.

b. At least once per 18 months or (1) after any structual maintenance on the HEPA filter or charcoal adsorber housing, or (2) following painting, fire, or chemical release in any ventilation zone communicating with the system by:

1. Verifying that the cleanup system satisfies the in-place testing acceptance criteria of > 99 percent efficiency using the test procedures of Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 1, July 1976, and the system flow rate is 2000 cfm ± 10%.

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Background (Continued)

the Service Water Building, or a slow leak lasting for an extended period of time), and an external smoke event. These events form the basis for the design of the Control Room Emergency Ventilation (CREVS) function of the CBHVAC System.

During a radiation event, the CBHVAC System is required to automatically isolate and enter the Radiation/Smoke Protection Mode on a Control Room Intake High Radiation signal from the Area Radiation Monitoring System. Upon receipt of a high radiation signal, the CBHVAC System is automatically realigned to the emergency mode of operation. The normal fresh air inlet closes, and, at approximately the same time, the emergency air filtration units begin operation, recirculating control room air and providing filtered makeup air to minimize contamination build-up and provide positive pressure in the Control Room Envelope. The CBHVAC System responds to an external smoke event in the same manner as it does for a radiation event.

In the event of a chlorine release, the CBHVAC System enters a full recirculation mode (Chlorine Protection Mode), with no outdoor air intake. The emergency filtration trains do not start, since they do not effectively remove chlorine and may be damaged by the presence of chlorine. Protection for chlorine gas events "overrides" any concurrent, ongoing, and any subsequent radiation or smoke initiation signals. The override design offers protection to operations personnel in the Control Room by providing protection against potentially fatal chlorine gas releases. This protection is required any time the chlorine tank car is within the exclusion area.

The CREVS is designed to meet the criteria of General Design Criterion (GDC) 19 (Reference 1). In addition, the system is designed using the guidance of Regulatory Guide 1.95, Revision 1 (Reference 2). Commitments have also been made to design the radiation protection function of the CBHVAC System to meet the single failure criteria described in IEEE 279-1971, and the chlorine detection and isolation logic to single failure criteria, both with approved exceptions (Reference 6, Section 3.6).

ACTION Statements 90, 91, and 92 require isolating the control room and operating the CREVS in either the Chlorine Protection Mode or the Radiation/Smoke Protection Mode, as appropriate. These ACTIONS presume that the CREVS is OPERABLE. During implementation of the Control Room Air Conditioning System replacement modification, the CREVS instrumentation may be considered OPERABLE, with a temporary barrier installed in the duct, or during use of temporary condensing units for the Control Room Air Conditioning System, as described in Bases 3/4.7.2.

LCO

Operability of the CREVS instrumentation ensures that the control room operators will be protected from hazards external to the control room, consistent with the assumptions in the various analyses, through the prompt detection and initiation of the necessary protective actions of the system.

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Applicability

The instrumentation associated with the Radiation/Smoke Protection Mode of the CREVS is required to be operable to automatically detect and initiate the Radiation/Smoke Protection Mode of operation during times when the potential exists for events which may result in the release of radioactive materials to the environment, up to and including design basis accidents. The specific radiological release events for which the system must provide a mitigating function are discussed in the bases of Technical Specification 3.7.2 and DBD-37 (Reference 6).

The instrumentation associated with the Chlorine Protection Mode of the CREVS is required to be OPERABLE to automatically detect and initiate the internal recirculation mode of operation any time the chlorine tank car is within the exclusion area.

The instrumentation associated with the External Smoke Protection function of the CREVS is required to be OPERABLE to automatically detect and initiate the Radiation/Smoke Protection Mode of operation during the same conditions as the Radiation Protection function. This ensures that habitability of the control room is maintained during times when a radiological release could potentially occur.

Actions

Radiation Protection

Two control room air inlet radiation detectors measure radiation levels in the inlet ducting of the main control room. A high radiation level automatically initiates the radiation protection mode of operation. Both channels are required to be OPERABLE to ensure that no single instrument failure can preclude the initiation of the radiation protection function of the control room emergency ventilation system. The loss of a single detector means that the CREVS reliability is reduced because a single failure in the OPERABLE subsystem could result in reduced or lost system capability. The 7 day out of service time is based on the low probability of a design basis accident and a single failure occurring during this time period, and the capability of the remaining instrumentation subsystem to provide the required isolation and is consistent with the out of service times allowed for loss of redundancy at the system level.

The loss of both detectors means that the automatic detection/isolation function of the radiation protection system is lost. Placing the CBHVAC System in the Radiation/Smoke Protection Mode is a suitable compensatory action to ensure that the automatic radiation protection function is not lost.

Chlorine Protection

The chlorine detection/isolation instrumentation is organized into two trip systems, with one trip system (remote) located near the chlorine tank car and the other located in the control building intake plenum (local). Each trip system contains two trip subsystems, with two detectors (one from each

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Actions (Continued)

division) in each trip subsystem. Both trip subsystems in each trip system are required to be OPERABLE any time the chlorine tank car is within the exclusion area to ensure adequate protection for the control room under postulated toxic gas events.

The chlorine detectors in each trip system are arranged in a one-out-of-two-taken-twic configuration. One detector from each of the trip sussytems ina trip system must actuate to initiate the automatic detection/isolation function. The loss of a single chlorine detector means that the CREVS reliability is reduced because a single failure in the remaining OPERABLE trip subsystem detector could result in reduced or lost system capability. The 7 day out of service time is based on the low probability of a design basis chlorine gas event and a single active failure occurring during this time period, and the capability of the remaining detectors to provide the required isolation capabilities. The out of service time is consistent with the out of service time allowed for loss of redundancy at the system level.

The loss of both detectors in any trip subsystem means that the automatic protection function of the chlorine detection/isolation system is lost. Placing the CBHVAC System in the Chlorine Protection Mode, through the use of control switches to close the appropriate dampers, ensures that the control room envelope is protected, while at the same time allowing a valid radiation or smoke signal to initiate appropriate protective actions. Operation in this mode is not limited in duration provided that either trip system remains functional to ensure that the override function of the Chlorine Protection Mode is not lost.

Smoke Protection

Automatic detection/isolation of the control room envelope in response to an external smoke event is dependent on the response of ionization detectors in Zones 4 and 5 of the Control Room. Multiple detectors in each of the zones provide the detection/isolation capability; however, detection by one detector in both zones is required to initiate the isolation function.

Having less than two detectors OPERABLE in a zone means the system reliability is reduced due to the loss of redundant detection capability in that zone. Allowing continued operation for up to 7 days with less than two OPERABLE detectors in either or both zones is an acceptable out of service time considering the low probability of an external smoke event and the failure of the remaining detector during this time period, and the capability of the remaining instrumentation to provide the required isolation. The out of service time is consistent with the out of service times allowed for loss of redundancy at the system level.

With less than one detector OPERABLE in either or both zones, the automatic detection/isolation function of the external smoke protection system is lost. Placing the CBHVAC System in the Radiation/Smoke Protection Mode is a suitable compensatory action to ensure that the automatic external smoke protection function is not lost.

3/4.3.5.5 CONTROL ROOM EMERGENCY VENTILATION SYSTEM (Continued)

Surveillances

Radiation Protection

Performance of the CHANNEL CHECK once every day ensures that a gross failure of the instrumentation has not occurred; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The CHANNEL CHECK frequency is consistent with that performed for other radiation monitors with isolation functions.

The CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. The Control Building HVAC DBD (Reference 6) defines the specific actions to be satisfied by the radiation actuation instrumentation. The quarterly frequency of the CHANNEL FUNCTIONAL TEST was established based on Reference 7 and is consistent with that performed for other radiation monitors with isolation functions.

The CHANNEL CALIBRATION verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to ensure consistency with the system assumptions (Reference 5). The frequency of the calibration is consistent with the frequency of calibration of other radiation monitors with isolation functions.

Chlorine Protection

The CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. The Control Building HVAC DBD (Reference 6) defines the specific actions to be satisfied by the chlorine isolation instrumentation. The monthly frequency of the CHANNEL FUNCTIONAL TEST is consistent with the testing frequencies performed by other utilities with this type of instrumentation.

The CHANNEL CALIBRATION of the trip units provides a check of the instrument loop and the sensor when the sensor is replaced. The test verifies the calibration of the existing sensor prior to removal and performs an installation calibration of the new sensor, including a complete channel calibration with the new sensor installed, to verify the channel responds to the measured parameter within the necessary range and accuracy. The CHANNEL CALIBRATION leaves the channel adjusted to ensure consistency with the system assumptions (Reference 6).

The chlorine detectors use an amperometric sensor consisting of a platinum cathode and silver anode joined by an electrolytic salt bridge, all enclosed in a permeable membrane. This design eliminates the majority of the maintenance required on previous detectors. The detectors have been in service at other facilities and have provided reliable service. The annual replacement and calibration are based on a manufacturer recommendation. The adequacy of the replacement interval has been confirmed through discussions with other utilities.

Smoke Protection

The CHANNEL FUNCTIONAL TEST for the Smoke Protection instrumentation is consistent with the testing performed in accordance with the existing Fire Detection Instrumentation requirements. CHANNEL CALIBRATION is performed in accordance with the requirements of the CREVS specification (4.7.2).

3/4.7.2 CONTROL ROOM EMERGENCY VENTILATION SYSTEM

Background

One of the principal design objectives of the Control Building Heating, Ventilation and Air Conditioning (CBHVAC) System is to permit continuous occupancy of the Control Room Emergency Zone under normal operating conditions and under the postulated design basis events throughout the life of the plant. The Control Building HVAC System must function to provide protection to the operators for three type events: a radiation event, up to and including a Design Basis Accident (e.g., Main Steam Line Break [MSLB] Accident, Refueling Accident, Control Rod Drop Accident, or Loss of Coolant Accident [LOCA]), a toxic gas event (complete rupture of the 55 ton chlorine tank car located near the Service Water Building, or a slow leak lasting for an extended period of time), and an external smoke event. These events form the basis for the design of the Control Room Emergency Ventilation (CREVS) function of the CBHVAC System.

The CREVS is designed to meet General Design Criterion (GDC) 19 (Reference 1). In addition, the system is designed using the guidance of Regulatory Guide 1.95, Revision 1 (Reference 2). Commitments have also been made to design the radiation protection function of the CBHVAC System to meet the single failure criteria described in IEEE 279-1971, and the chlorine detection and isolation logic to single failure criteria, both with approved exceptions (Reference 12, Section 3.6).

During implementation of the Control Room Air Conditioning System replacement modification, the CREVS may be considered OPERABLE with a temporary barrier installed in the duct as part of the control room pressure boundary. The temporary ductwork barriers are required to be constructed to preserve the leakage characteristics of the control room presure boundary; however, these temporary barriers are not required to be seismically qualified. In addition, adjacent ductwork may be considered OPERABLE if not seismically qualified while work is actively in progress.

Also, during the installation of the Control Room Air Conditioning System replacement modification, the temporary condensing units which support the operability of the Control Room HVAC System may be considered OPERABLE as long as two of the three units are functional, even though they are not protected from severe natural phenomena such as seismic events and tornadoes, or radioactive sabotage. Single failure criteria do not apply to the Control Room Air Conditioning System during this time.

LCO

Operability of the CREVS ensures that the control room will remain habitable for operations personnel during and following all credible hazard event scenarios external to the control room, consistent with the assumptions in the various analyses. Two redundant subsystems of the CREVS are required to be OPERABLE to ensure that at least one is available, assuming a single failure disables the other subsystem. The CREVS is considered OPERABLE when the individual components necessary to control operator exposure are operable in both subsystems. For the Radiation/Smoke Protection Mode, a subsystem is considered OPERABLE when its associated:

1. Fan is OPERABLE,

2. HEPA filter and charcoal adsorbers are not excessively restricting flow and are capable of performing their filtration functions, and

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 191 TO FACILITY OPERATING LICENSE NO. DPR-71

AND AMENDMENT NO. 222 TO FACILITY OPERATING 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

In a letter dated November 6, 1997, as supplemented by letter dated January 28, 1998, Carolina Power and Light Company (CPL), the licensee for the Brunswick Steam Electric Plant (BSEP) Units 1 and 2, submitted a request for license amendments. Based upon use of certain compensatory actions to assure accomplishment of design basis functions, the proposed amendments revise, for a limited period of time, the design basis qualification for the Control Room Emergency Ventilation System (CREVS) and CREVS instrumentation. The proposed changes were requested to support modifications to upgrade the Control Room Air Conditioning (AC) equipment and some supporting components. The Control Room AC system is required to prevent the failure of safety-related equipment and to ensure Control Room habitability following certain design basis events. The planned modifications will affect the seismic integrity of the Control Room envelope and cannot be completed within the allowed outage times specified in the Technical Specifications (TS). Without approval of the proposed license amendments, implementation of the Control Room upgrades would require shutting down both BSEP units. The amendment provides for the use of temporary AC equipment and ductwork barriers which do not fully meet the design basis for CREVS for certain external events (e.g., earthquakes, tornadoes and hurricanes, radiological sabotage and missile hazards). Compensatory actions will be taken to minimize the risk under the temporary amendment and assure necessary functions can be accomplished. The change to the TS for the CREVS is for one-time use and will not be used after May 1, 1998.

2.0 DISCUSSION AND EVALUATION

During a self-initiated safety system functional inspection of the Control Building heating and ventilation and AC system, the licensee determined that the analysis which served as the basis for the non-safety-related, seismic classification for the Control Room AC system contained some assumptions that could not be supported by the current plant configuration. Analysis demonstrated that the operation of the Control Room AC system is required to prevent failure of safety-related equipment following certain design basis events in combination with credible single failures and should be classified as safety-related. CP&L decided to replace the AC system condensing units with new units and to make modifications stemming from the

Unresolved Safety Issue (USI) A-46 program ("Seismic Adequacy of Mechanical and Electrical Equipment"). The Control Room AC system consists of a large volume recirculation system, which discharges air from the Control Room, filters the air, adds a small percentage of outdoor air, cools or heats the air, and returns the air to the Control Room. The motive force for the recirculation is provided by three fans, two of which are normally in operation and one of which is a standby. There are three evaporative coils in the ductwork on the suction side of the fans and three condensing units. A fan, evaporative coil, and condensing unit constitute a set and there is no cross-over capability between sets.

When the CREVS is to be used for a radiation release or a smoke emergency, the normal air intake isolates and the CREVS provides a source of outdoor air that passes through particulate and charcoal filters. In the event of a toxic gas (chlorine) release only the recirculation system is in service. The CREVS shuts down and all the outdoor air intake terminates.

The supply fans and the ductwork containing the evaporative coils form part of the pressure boundary for the Control Room envelope during radiation, smoke, or toxic gas events. The ductwork that forms part of the Control Room pressure boundary is designed and constructed to seismic criteria. The ductwork is housed in a seismically designed, tornado-proof structure with engineered features for protection from natural phenomena.

Breaching the ductwork is required as part of the Control Room AC system upgrade and for the USI A-46 work. A temporary non-seismically qualified barrier will be constructed to preserve the leakage characteristics of the Control Room pressure boundary. This portion of the work will require up to 16 days to complete.

While the condensing units are out of service, temporary condensing units located on the roof, outside the Vital Area but inside the Protected Area, will be used. During this time the Control Room AC system will not be protected from certain external events, as specified by the system design and licensing bases. The temporary condensing units will be required for up to nine weeks.

A breach of the ductwork at the suction side of the supply fans due to a seismic event will prohibit isolation from outside air sources, increasing the unfiltered in-leakage to an amount in excess of that used in the analyses. There is no permanent isolation capability for this portion of the ductwork.

The Bases for the CREVS TS (TS 3.7.2) and the Updated Final Safety Analysis Report (UFSAR) in Section 6.4 require that the system ensure the habitability of the Control Room during normal operation and postulated natural phenomena, environmental and missile hazards and events requiring physical protection of vital equipment. While the modification is being implemented in the ductwork, the seismic integrity of the ductwork will not be assured. Also, the temporary condensing units on the roof and piping which connect them to the evaporative coils will not be seismically qualified, protected from severe natural phenomena, or physically protected from radiological sabatoge.

CP&L has proposed modifying TS 3.7.2 by the addition of footnote *** which redefines the definition of Operability for the CREVS system. The definition states "The Control Room

Emergency Ventilation System (CREVS) ductwork may be considered OPERABLE, for one or more periods totaling up to 16 days, using temporary ductwork barriers constructed to preserve the leakage characteristics of the control room pressure boundary under normal operational conditions, during the implementation of the Control Room Air Conditioning System replacement modification. The chlorine tank car shall be removed from the exclusion area while temporary ductwork barriers are being used. The CREVS may also be considered OPERABLE up to nine weeks with temporary condensing units and associated piping and controls installed. Two of these units shall be functional during normal operational conditions. This is applicable during the time period January 30, 1998 to May 1, 1998. In this configuration, the system is not considered to be in an ACTION statement for the purposes of Technical Specification 3.0.4."

CPL has proposed modifying TS 3.3.5.5, which addresses CREVS instrumentation, by the addition of footnote * which redefines the definition of Operability for the CREVS instrumentation. The definition states "The Control Room Emergency Ventilation System (CREVS) instrumentation may be considered OPERABLE, consistent with the conditions specified in footnote *** to Technical Specification 3.7.2, during the time period from January 30, 1998, to May 1, 1998. In this configuration the CREVS instrumentation is not considered to be in an ACTION statement for the purposes of Technical Specification 3.0.4."

The licensee provided the following justifications for the temporary one-time changes:

> During the portion of the modifications that affect the ductwork at the evaporative coils, the ductwork and coils will not be seismically qualified. If the ductwork should fail during a seismic event, there will be a reduction in the cooling capacity of the system. Also, the temporary condensing units to be erected outside the Control Building will not be seismically qualified nor will they be protected from high winds or tornado missiles. This work is planned to take place in the Winter and early Spring, when reliance on the AC system is minimal due to lower outdoor temperatures than at other times of the year. In the unlikely event of a Design Basis Earthquake (DBE) during the nine weeks that the temporary condensing units will be used, the temperature of the Control Room would be maintained by opening doors and increasing the ventilation rate. Additional measures to provide temporary Control Room cooling will be established prior to beginning the upgrades to the Control Room AC system.
>
> The time during which the temporary barrier in the ductwork is required is relatively short (i.e., a total of 16 days). Since the existing barriers to release of significant amounts of radioactive material are seismically qualified, the probability of a seismic event and a significant radioactive material release occurring simultaneously is extremely small and is not part of the design basis for the BSEP. [Nonetheless] Radiation events or offsite fires [producing smoke] resulting from a seismic event can be postulated as a hazard to Control Room personnel. If [such] hazardous conditions exist, Control Room personnel would don self-contained breathing apparatus (SCBA)
>
> A temporary barrier will be erected in the duct upstream of the fan being worked. The leakage characteristics of the portion of the duct still in service will be similar to the permanently erected duct. The temporary barriers will be constructed to provide

integrity of the duct during design basis radiation release events.

In the event of a radiation or toxic gas release or smoke emergency, not combined with severe natural phenomena, the habitability of the Control Room will be maintained. The erection of the barrier in each duct will be accomplished within the 12 hour allowed outage time currently provided by the TS for shutdown of BSEP, Units 1 and 2.

The only toxic gas threat to the habitability of the Control Room is from the chlorine gas. With the cool sea water temperatures in February and March, chlorination can be interrupted for this period without extensive biofouling of the Service Water and Circulating Water systems. The chlorine tank car will be removed from the site while the temporary barriers are used.

The temporary measures to cool the Control Room would violate the Control Room pressure boundary. The analysis for the complete rupture of the chlorine car shows that the cloud, including the liquid spill, dissipates to below levels of concern in less than three hours. The temporary cooling measures can be delayed by this amount of time without damage or affecting the operability of Control Room equipment. If a chlorine system break were to occur in conjunction with a seismic event and resulted in the need to use temporary measures for Control Room cooling, the Control Room operators could don SCBA.

The temporary condensing units will be mounted on the roof of the Control Building in an area that is provided with sufficient drainage such that flooding is not a concern. The condensing units will be elevated such that components whose operation may be affected by heavy rains will be a minimum of 6 inches above the roof surface. In the event of snow or ice build-up at the temporary condensing units there will be sufficient time available to take action to clear any blockage and restore the units.

While hot work is being conducted in the area of the condensing units, a continuous fire watch will be maintained. Periodic operator rounds will be used to monitor the temporary cooling units when hot work is not being performed.

The licensee has performed an analysis of the temperature rise in the control room, under springtime temperature conditions, in the event of loss of the AC condensing units with CREVS integrity remaining in tact. It shows that control room temperature would remain below 100°F for a period of 16 hours. This would allow adequate time for dissipation of chlorine gas, plant shutdown (Hot Shutdown), and implementation of alternative cooling measures.

An adequate suppy of SCBAs is available to operators should CREVS integrity be lost due to a seismic event, potentially resulting in a radiological release or fires offsite, or coincident with a toxic gas release. The plant has an SCBA refill system and a procedure for operation of that system. Backup refill capability is available by means of compressors located at a nearby fire department. Operators are trained and qualified in the use of this equipment. Plant procedures require that operators don SCBAs in the event chlorine is detected in the control room. Procedures also require periodic inventory and inspections of SCBAs. Prior to the commencement of the subject CREVS modifications, one operations crew will participate in an

exercise scenario on the plant simulator while wearing SCBAs. Any lessons learned from that exercise will be provided to each operating crew.

2.8 Results Of Staff Review

The BSEP licensee proposed license amendments to revise, for a limited period of time, the design basis qualification for the CREVS and the CREVS instrumentation. The proposed changes were requested to support modifications to upgrade the Control Room AC equipment and some supporting components. The Control Room AC system is required to prevent the failure of safety-related equipment and to ensure Control Room habitability following certain design basis events. The planned modifications will affect the seismic integrity of the Control Room envelope and cannot be completed within the allowed outage times specified in the Technical Specifications (TS). Without approval of the proposed license amendments, implementation of the Control Room AC upgrade would require shutting down both of the BSEP units. The amendments provide for the use of temporary AC equipment and ductwork barriers which do not fully meet the design basis for certain external events (e.g., earthquakes, tornadoes and hurricanes, radiological sabotage and missile hazards). Compensatory actions will be taken to minimize the risk under the temporary amendments and ensure design basis functions can be accomplished, and the change to the TS for the CREVS is for one-time use and will not be used after May 1, 1998. The proposed temporary changes do not affect any component or any of the barriers to radiation release, any of the systems which protect the core from overheating, or any system used to shut down the reactor. The proposed changes do not affect the chlorination system piping or the tank car, which would be initiating components of a chlorine release event. The licensee has analyzed the increase in risk due to the temporary modification of the CREVS and found that the increase in the probability of a radiological release would be insignificant.

The staff has reviewed the licensee's proposed temporary amendments and the proposed compensatory actions. The staff concludes that the proposed compensating actions provide reasonable assurance that these one-time temporary amendments will not affect the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a shutdown condition or the capability to prevent or mitigate the consequences of accidents which could result in potential offsite exposures comparable to the exposures of 10 CFR Part 100 in the event of natural phenomena (General Design Criterion 2) such as earthquakes, hurricanes, tornadoes, wind- generated missiles or heavy rain. Additionally the staff concludes that, with the compensatory actions proposed by the licensee, adequate radiation protection will be provided to Control Room personnel under accident conditions (General Design Criterion 19).

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the State of North Carolina official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of a facility component located