

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

May 16, 2000

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 - ISSUANCE OF AMENDMENT REVISING STANDBY GAS TREATMENT SYSTEM CHARCOAL TESTING REQUIREMENTS (TAC NOS. MA7255 AND MA7256)

Dear Mr. Keenan:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 209 to Facility Operating License No. DPR-71 and Amendment No. 237 to Facility Operating License No. DPR-62 for the Brunswick Steam Electric Plant, Units 1 and 2. The amendments change the Technical Specifications in response to your submittal dated November 23, 1999.

The amendments change TS 5.5.7.c.1, "Ventilation Filter Testing." The testing criteria have been changed to be consistent with the NRC request in Generic Letter 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal."

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

Sincerely,

/RA/

Allen Hansen, Project Manager, Section 2  
 Project Directorate II  
 Division of Licensing Project Management  
 Office of Nuclear Reactor Regulation

Docket Nos. 50-325  
 and 50-324

Enclosures:

1. Amendment No. 209 to License No. DPR-71
2. Amendment No. 237 to License No. DPR-62
3. Safety Evaluation

cc w/enclosures:  
 See next page

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AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-71 - BRUNSWICK,  
UNIT 1, AND AMENDMENT NO. 237 TO FACILITY OPERATING LICENSE NO. DPR-62 -  
BRUNSWICK, UNIT 2

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

May 16, 2000

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

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 - ISSUANCE OF  
AMENDMENT REVISING STANDBY GAS TREATMENT SYSTEM CHARCOAL  
TESTING REQUIREMENTS (TAC NOS. MA7255 AND MA7256)

Dear Mr. Keenan:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 209 to Facility Operating License No. DPR-71 and Amendment No. 237 to Facility Operating License No. DPR-62 for the Brunswick Steam Electric Plant, Units 1 and 2. The amendments change the Technical Specifications (TS) in response to your submittal dated November 23, 1999.

The amendments change TS 5.5.7.c.1, "Ventilation Filter Testing." The testing criteria have been changed to be consistent with the NRC request in Generic Letter 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal."

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

Sincerely,

Allen Hansen, Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-325  
and 50-324

Enclosures:

1. Amendment No. 209 to  
License No. DPR-71
2. Amendment No. 237 to  
License No. DPR-62
3. Safety Evaluation

cc w/enclosures:  
See next page



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. 209  
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 23, 1999, 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. 209, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Richard P. Correia, Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: May 16, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 209

FACILITY OPERATING LICENSE NO. DPR-71

DOCKET NO. 50-325

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

5.0-11 through 5.0-16

Insert Pages

5.0-11 through 5.0-16

5.5 Programs and Manuals

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5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

Tests described in Specification 5.5.7.c shall be performed once per 24 months; after 720 hours of charcoal adsorber operation; after any structural maintenance on the HEPA filter or charcoal adsorber housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

Tests described in Specification 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

- a. Demonstrate for each of the ESF systems that an inplace test of the HEPA filters shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 1, Positions C.5.a and C.5.c, and ANSI N510-1975 at the system flowrate specified below:

<u>ESF Ventilation System</u>	<u>Flowrate (cfm)</u>
Standby Gas Treatment (SGT) System	2700 to 3300
Control Room Emergency Ventilation (CREV) System	1800 to 2200

- b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 1, Positions C.5.a and C.5.d, and ANSI N510-1975 at the system flowrate specified below:

<u>ESF Ventilation System</u>	<u>Flowrate (cfm)</u>
SGT System	2700 to 3300
CREV System	1800 to 2200

(continued)

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5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- c. 1) Demonstrate for the SGT System that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 1, Position C.6.b, and tested in accordance with ASTM D3803-1989, at a temperature of 30°C, a face velocity of 61 fpm, and a relative humidity of 70% within the tolerances provided in Table 1 of ASTM D3803-1989, shows the methyl iodide penetration < 0.5%.
- 2) Demonstrate for the CREV System that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 1, Position C.6.b, and tested in accordance with ASTM D3803-1989, at a temperature of 30°C and a relative humidity of 95% within the temperature and humidity tolerances provided in Table 1 of ASTM D3803-1989, meets the acceptance criteria of < 5.0% penetration of methyl iodide.
- d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilter (SGT only), and the charcoal adsorbers is less than or equal to the value specified below when tested at the system flowrate specified as follows:
- | <u>ESF Ventilation System</u> | <u>Delta P</u> (inches wg) | <u>Flowrate</u> (cfm) |
|-------------------------------|----------------------------|-----------------------|
| SGT System                    | 8.5                        | 2700 to 3300          |
| CREV System                   | 5.25                       | 1800 to 2200          |
- e. Demonstrate that the heaters for each of the SGT subsystems dissipate  $\geq 16.67$  kW under a degraded voltage condition when tested in accordance with ANSI N510-1975.

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Main Condenser Offgas Treatment System and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

(continued)

## 5.5 Programs and Manuals

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### 5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

The program shall include:

- a. The limits for concentrations of hydrogen in the Main Condenser Offgas Treatment System and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion); and
- b. A surveillance program to ensure that the quantity of radioactivity contained in each outdoor liquid radwaste tank that is not surrounded by liners, dikes, or walls, capable of holding the tank's contents and that does not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is  $\leq 10$  Curies, excluding tritium and dissolved or entrained gases.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program Surveillance Frequencies.

### 5.5.9 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program shall establish required testing of both new fuel oil and stored fuel oil. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

- a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has not become contaminated with other products during transit, thus altering the quality of the fuel oil;
- b. Kinematic viscosity is within limits for ASTM 2-D fuel oil when tested every 92 days; and
- c. Total particulate concentration of the fuel oil is  $\leq 10$  mg/l when tested every 31 days in accordance with the applicable ASTM Standard.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program test Frequencies.

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## 5.5 Programs and Manuals

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### 5.5.10 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:
  1. A change in the TS incorporated in the license; or
  2. A change to the UFSAR or Bases that involves an unreviewed safety question as defined in 10 CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.
- d. Proposed changes that meet the criteria of Specification 5.5.10.b.1 or 5.5.10.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

### 5.5.11 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6.

- a. The SFDP shall contain the following:
  1. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

(continued)

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5.5 Programs and Manuals

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5.5.11 Safety Function Determination Program (SFDP) (continued)

2. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;
  3. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and
  4. Other appropriate limitations and remedial or compensatory actions.
- b. A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:
1. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or
  2. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or
  3. A required system redundant to support system(s) for the supported systems described in b.1 and b.2 above is also inoperable.
- c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

5.5.12 Primary Containment Leakage Rate Testing Program

A primary containment leakage rate testing program shall establish requirements to implement the leakage rate testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, September 1995, as modified by the following exceptions:

(continued)

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5.5 Programs and Manuals

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Primary Containment Leakage Rate Testing Program (continued)

- a. Compensation of instrument accuracies applied to the primary containment leakage total in accordance with ANSI/ANS 56.8-1987 instead of ANSI/ANS 56.8-1994;
- b. Following air lock door seal replacement, performance of door seal leakage rate testing with the gap between the door seals pressurized to 10 psig instead of air lock testing at  $P_a$  as specified in Nuclear Energy Institute Guideline 94-01, Revision 0;
- c. Reduced duration Type A tests may be performed using the criteria and Total Time method specified in Bechtel Topical Report BN-TOP-1, Revision 1.
- d. Performance of Type C leak rate testing of the hydrogen and oxygen monitor isolation valves is not required; and
- e. Performance of Type C leak rate testing of the main steam isolation valves at a pressure less than  $P_a$  instead of leak rate testing at  $P_a$  as specified in ANSI/ANS 56.8-1994.

The peak calculated primary containment internal pressure for the design basis loss of coolant accident,  $P_a$ , is 49 psig.

The maximum allowable primary containment leakage rate,  $L_a$ , shall be 0.5% of primary containment air weight per day at  $P_a$ .

Leakage rate acceptance criteria are:

- a. Primary containment leakage rate acceptance criterion is  $\leq 1.0 L_a$ . During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are  $< 0.60 L_a$  for Type B and C tests and  $\leq 0.75 L_a$  for Type A tests.
- b. Air lock testing acceptance criteria are:
  - 1) Overall air lock leakage rate is  $\leq 0.05 L_a$  when tested at  $\geq P_a$ .
  - 2) For each air lock door, leakage rate is  $\leq 5$  scfh when the gap between the door seals is pressurized to  $\geq 10$  psig.

The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program frequencies.

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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. 237  
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 23, 1999, 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. 237, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Richard P. Correia, Chief, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: May 16, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 237

FACILITY OPERATING LICENSE NO. DPR-62

DOCKET NO. 50-324

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

5.0-11 through 5.0-16

Insert Pages

5.0-11 through 5.0-16

5.5 Programs and Manuals

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5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

Tests described in Specification 5.5.7.c shall be performed once per 24 months; after 720 hours of charcoal adsorber operation; after any structural maintenance on the HEPA filter or charcoal adsorber housing; and, following significant painting, fire, or chemical release in any ventilation zone communicating with the system.

Tests described in Specification 5.5.7.d and 5.5.7.e shall be performed once per 24 months.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the VFTP test frequencies.

- a. Demonstrate for each of the ESF systems that an inplace test of the HEPA filters shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 1, Positions C.5.a and C.5.c, and ANSI N510-1975 at the system flowrate specified below:

<u>ESF Ventilation System</u>	<u>Flowrate (cfm)</u>
Standby Gas Treatment (SGT) System	2700 to 3300
Control Room Emergency Ventilation (CREV) System	1800 to 2200

- b. Demonstrate for each of the ESF systems that an inplace test of the charcoal adsorber shows a penetration and system bypass < 1.0% when tested in accordance with Regulatory Guide 1.52, Revision 1, Positions C.5.a and C.5.d, and ANSI N510-1975 at the system flowrate specified below:

<u>ESF Ventilation System</u>	<u>Flowrate (cfm)</u>
SGT System	2700 to 3300
CREV System	1800 to 2200

(continued)

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5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- c. 1) Demonstrate for the SGT System that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 1, Position C.6.b, and tested in accordance with ASTM D3803-1989, at a temperature of 30°C, a face velocity of 61 fpm, and a relative humidity of 70% within the tolerances provided in Table 1 of ASTM D3803-1989, shows the methyl iodide penetration < 0.5%.
- c. 2) Demonstrate for the CREV System that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 1, Position C.6.b, and tested in accordance with ASTM D3803-1989, at a temperature of 30°C and a relative humidity of 95% within the temperature and humidity tolerances provided in Table 1 of ASTM D3803-1989, meets the acceptance criteria of < 5.0% penetration of methyl iodide.
- d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters, the prefilter (SGT only), and the charcoal adsorbers is less than or equal to the value specified below when tested at the system flowrate specified as follows:
 

<u>ESF Ventilation System</u>	<u>Delta P (inches wg)</u>	<u>Flowrate (cfm)</u>
SGT System	8.5	2700 to 3300
CREV System	5.25	1800 to 2200
- e. Demonstrate that the heaters for each of the SGT subsystems dissipate  $\geq 16.67$  kW under a degraded voltage condition when tested in accordance with ANSI N510-1975.

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Main Condenser Offgas Treatment System and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

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## 5.5 Programs and Manuals

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### 5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

The program shall include:

- a. The limits for concentrations of hydrogen in the Main Condenser Offgas Treatment System and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion); and
- b. A surveillance program to ensure that the quantity of radioactivity contained in each outdoor liquid radwaste tank that is not surrounded by liners, dikes, or walls, capable of holding the tank's contents and that does not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is  $\leq 10$  Curies, excluding tritium and dissolved or entrained gases.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program Surveillance Frequencies.

### 5.5.9 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program shall establish required testing of both new fuel oil and stored fuel oil. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

- a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has not become contaminated with other products during transit, thus altering the quality of the fuel oil;
- b. Kinematic viscosity is within limits for ASTM 2-D fuel oil when tested every 92 days; and
- c. Total particulate concentration of the fuel oil is  $\leq 10$  mg/l when tested every 31 days in accordance with the applicable ASTM Standard.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program test Frequencies.

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## 5.5 Programs and Manuals

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### 5.5.10 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:
  1. A change in the TS incorporated in the license; or
  2. A change to the UFSAR or Bases that involves an unreviewed safety question as defined in 10 CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the UFSAR.
- d. Proposed changes that meet the criteria of Specification 5.5.10.b.1 or 5.5.10.b.2 above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

### 5.5.11 Safety Function Determination Program (SFDP)

This program ensures loss of safety function is detected and appropriate actions taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other appropriate limitations and remedial or compensatory actions may be identified to be taken as a result of the support system inoperability and corresponding exception to entering supported system Condition and Required Actions. This program implements the requirements of LCO 3.0.6.

- a. The SFDP shall contain the following:
  1. Provisions for cross division checks to ensure a loss of the capability to perform the safety function assumed in the accident analysis does not go undetected;

(continued)

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## 5.5 Programs and Manuals

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### 5.5.11 Safety Function Determination Program (SFDP) (continued)

2. Provisions for ensuring the plant is maintained in a safe condition if a loss of function condition exists;
  3. Provisions to ensure that an inoperable supported system's Completion Time is not inappropriately extended as a result of multiple support system inoperabilities; and
  4. Other appropriate limitations and remedial or compensatory actions.
- b. A loss of safety function exists when, assuming no concurrent single failure, a safety function assumed in the accident analysis cannot be performed. For the purpose of this program, a loss of safety function may exist when a support system is inoperable, and:
1. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or
  2. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or
  3. A required system redundant to support system(s) for the supported systems described in b.1 and b.2 above is also inoperable.
- c. The SFDP identifies where a loss of safety function exists. If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

### 5.5.12 Primary Containment Leakage Rate Testing Program

A primary containment leakage rate testing program shall establish requirements to implement the leakage rate testing of the primary containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, September 1995, as modified by the following exceptions:

(continued)

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## 5.5 Programs and Manuals

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### 5.5.12 Primary Containment Leakage Rate Testing Program (continued)

- a. Compensation of instrument accuracies applied to the primary containment leakage total in accordance with ANSI/ANS 56.8-1987 instead of ANSI/ANS 56.8-1994;
- b. Following air lock door seal replacement, performance of door seal leakage rate testing with the gap between the door seals pressurized to 10 psig instead of air lock testing at  $P_a$  as specified in Nuclear Energy Institute Guideline 94-01, Revision 0;
- c. Reduced duration Type A tests may be performed using the criteria and Total Time method specified in Bechtel Topical Report BN-TOP-1, Revision 1.
- d. Performance of Type C leak rate testing of the hydrogen and oxygen monitor isolation valves is not required; and
- e. Performance of Type C leak rate testing of the main steam isolation valves at a pressure less than  $P_a$  instead of leak rate testing at  $P_a$  as specified in ANSI/ANS 56.8-1994.

The peak calculated primary containment internal pressure for the design basis loss of coolant accident,  $P_a$ , is 49 psig.

The maximum allowable primary containment leakage rate,  $L_a$ , shall be 0.5% of primary containment air weight per day at  $P_a$ .

Leakage rate acceptance criteria are:

- a. Primary containment leakage rate acceptance criterion is  $\leq 1.0 L_a$ . During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are  $< 0.60 L_a$  for Type B and C tests and  $\leq 0.75 L_a$  for Type A tests.
- b. Air lock testing acceptance criteria are:
  - 1) Overall air lock leakage rate is  $\leq 0.05 L_a$  when tested at  $\geq P_a$ .
  - 2) For each air lock door, leakage rate is  $\leq 5$  scfh when the gap between the door seals is pressurized to  $\geq 10$  psig.

The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program frequencies.

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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 209 TO FACILITY OPERATING LICENSE NO. DPR-71  
AND AMENDMENT NO. 237 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

By letter dated November 23, 1999, the Carolina Power & Light Company (the licensee) submitted a request for changes to the Brunswick Steam Electric Plant, Units 1 and 2, Technical Specifications (TS). The requested changes would amend TS 5.5.7.c.1, "Ventilation Filter Testing." The testing criteria would be changed consistent with the NRC request in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal."

2.0 BACKGROUND

On June 3, 1999, the U.S. Nuclear Regulatory Commission (NRC) issued GL 99-02 to all holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

The purpose of the GL was to:

- (1) Alert addressees that the NRC has determined that testing nuclear-grade activated charcoal to standards other than American Society of Testing and Materials (ASTM) D3803-1989 does not provide assurance for complying with the current licensing basis as it relates to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the *Code of Federal Regulations* (10 CFR) and Subpart A of 10 CFR Part 100.

[The staff has acknowledged that the most current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, it was decided for consistency purposes to have all of the nuclear reactors test to the same standard (ASTM D3803-1989) because approximately one-third of the nuclear reactors' TS referenced

ASTM D3803-1989 prior to GL 99-02 being issued, and there are no substantive changes between the 1989 and 1998 versions.]

- (2) Request that all addressees determine whether their TS reference ASTM D3803-1989 for charcoal filter laboratory testing. Addressees whose TS do not reference ASTM D3803-1989 should either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol and provide the information discussed in the requested actions.
- (3) Alert addressees to the staff's intent to exercise enforcement discretion under certain conditions.
- (4) Request that all addressees send the NRC written responses on the implementation of the actions requested in this GL.

The licensee submitted this amendment request in response to item (2) above.

### 3.0 EVALUATION

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittal. In addition, the staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for Brunswick. Based on its review, the staff endorses the TER. In view of the above, and because the staff considers ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in safety-related ventilation systems, the staff finds that the proposed TS changes satisfy the actions requested in GL 99-02 and are acceptable.

### 4.0 STATE CONSULTATION

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

### 5.0 ENVIRONMENTAL CONSIDERATION

These amendments relate to changes in recordkeeping, reporting, or administrative procedures or requirements. Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(10). 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.

### 6.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the

Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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Date: May 16, 2000

Attachment: BNL Technical Evaluation Report

TECHNICAL EVALUATION REPORT  
BROOKHAVEN NATIONAL LABORATORY  
FOR THE OFFICE OF NUCLEAR REACTOR REGULATION  
DIVISION OF SYSTEMS SAFETY AND ANALYSIS  
PLANT SYSTEMS BRANCH  
RELATED TO AMENDMENT TO FACILITY OPERATING LICENSE NOS.  
DPR-71 and DPR-62  
CAROLINA POWER AND LIGHT COMPANY  
BRUNSWICK STEAM ELECTRIC PLANT UNIT NOS. 1 AND 2  
(DOCKET NOS. 50-325 and 50-324)

## 1.0 INTRODUCTION

By letter dated November 24, 1999 (BSEP 99-0184), Carolina Power & Light Company (the licensee) submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for the Brunswick Steam Electric Plant Unit Nos. 1 and 2. By letter dated November 23, 1999 (BSEP 99-0182), Carolina Power & Light Company requested changes to the Technical Specifications (TS) Sections 5.5.7c.1, "Ventilation Filter Testing Program," for the Standby Gas Treatment (SGT) Systems for the Brunswick Steam Electric Plant Unit Nos. 1 and 2. The proposed changes would revise the TS surveillance testing of the safety related ventilation system charcoal to meet the requested actions of GL 99-02.

## 2.0 BACKGROUND

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TS to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the staff alerted licensees that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with their current licensing basis as it relates to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether their TS reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TS do not reference ASTM D3803-1989 were requested to either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol.

### **3.0 EVALUATION**

#### **3.1 Laboratory Charcoal Sample Testing Surveillance Requirements**

The current and proposed TS surveillance requirements for laboratory charcoal sample testing of the Standby Gas Treatment (SGT) and Control Room Emergency Ventilation (CREV) systems are shown in Table 1 and Table 2, respectively.

Requested Action 1 of GL 99-02 specified that a TS amendment was not necessary if the current TS specifically required laboratory testing of charcoal samples in accordance with ASTM D3803-1989 at a test temperature of 30°C. The current TS for the Units 1 and 2 CREV systems requires laboratory testing of charcoal samples in accordance with ASTM D3803-1989 at a temperature of 30°C. Therefore, no TS Amendment for the CREV systems is necessary.

The proposed use of ASTM D3803-1989 for the Units 1 and 2 SGT systems is acceptable because it is consistent with the actions requested in GL 99-02. The proposed test temperature of 30°C and relative humidity (RH) of 95 percent are acceptable because they are consistent with ASTM D3803-1989 and the actions requested in GL 99-02.

The charcoal filter efficiency for organic iodine as credited in the licensee's accident analysis for the SGT systems is  $\geq 99$  percent. The charcoal filter test efficiency for radioactive methyl iodide as proposed in Section 5.5.7, "Ventilation Filter Testing Program (VFTP)" of the TS for the SGT systems is  $> 99.5$  percent. This results in a proposed safety factor of 2 for the SGT systems and is therefore acceptable because it is equal to the minimum safety factor of 2 specified in GL 99-02.

The licensee stated in the November 23 and 24, 1999 letters that the SGT systems have a face velocity of 61 fpm. Since the face velocity is greater than 110 percent of 40 fpm, the licensee specified the 61 fpm in the proposed TS amendments for the SGT systems. This is acceptable because it is consistent with the August 23, 1999 errata to GL 99-02.

### **4.0 CONCLUSION**

On the basis of its evaluation, BNL recommends that the NRC staff consider the proposed TS changes to be acceptable.

Principal Contributor: Anthony N. Fresco

Date: April 3, 2000

**BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2**

<b>TABLE 1 - CURRENT TS REQUIREMENTS</b>												
<b>System Description</b>						<b>Current TS Requirements</b>						
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency (% organic iodine)	Test Penetration (% methyl iodide)	Safety Factor	Test Standard	Test Temp (° C)	Test RH	Test Face Velocity (fpm)	
			Res. Time (sec)	Face Velocity (fpm)								
Unit 1	5.5.7.c (1)	Standby Gas Treatment (SGT) System	4	0.33	61	99%	<1%	Not stated (1)**	RG 1.52, Rev. 1, 1976, Position C.6.b	≤80°C	>70%	Not stated
	5.5.7.c (2)	Control Room Emergency Ventilation (CREV) System	2	0.23	Not stated (44)*	Not stated	<5%	Not stated	ASTM D3803-1989	≤30°C	95%	Not stated
Unit 2	5.5.7.c (1)	Standby Gas Treatment (SGT) System	4	0.33	61	99%	<1%	Not stated (1)**	RG 1.52, Rev. 1, 1976, Position C.6.b	≤80°C	>70%	Not stated
	5.5.7.c (2)	Control Room Emergency Ventilation (CREV) System	2	0.23	Not stated (44)*	Not stated	<5%	Not stated	ASTM D3803-1989	≤30°C	95%	Not stated

\* Face velocities are as calculated based on bed depths and residence times.

\*\* Safety factors are as calculated based on the credited efficiencies and the allowable test penetrations.

**BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2**

<b>TABLE 2 - PROPOSED TS REQUIREMENTS</b>												
<b>System Description</b>							<b>Proposed TS Requirements</b>					
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency (% organic iodine)	Test Penetration (% methyl iodide)	Safety Factor	Test Standard	Test Temp (° C)	Test RH	Test Face Velocity (fpm)	
			Res. Time (sec)	Face Velocity (fpm)								
Unit 1	5.5.7.c (1) Standby Gas Treatment (SGT) System	4	0.33	61	99%	≤0.5%	2	ASTM D3803-1989	≤30°C	95%	61	
	5.5.7.c (2) Control Room Emergency Ventilation (CREV) System	2	0.23	Not stated (44)*	Not stated	<5%	Not stated	ASTM D3803-1989	≤30°C	95%	Not stated (40)*	
Unit 2	5.5.7.c (1) Standby Gas Treatment (SGT) System	4	0.33	61	99%	≤0.5%	2	ASTM D3803-1989	≤30°C	95%	61	
	5.5.7.c (2) Control Room Emergency Ventilation (CREV) System	2	0.23	Not stated (44)*	Not stated	<5%	Not stated	ASTM D3803-1989	≤30°C	95%	Not stated (40)**	

\* Face velocities are as calculated based on bed depths and residence times.

\*\* Test face velocity of 40 fpm is equivalent to the test face velocity specified in ASTM D3803-1989.

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Units 1 and 2

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