



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

September 14, 2000

Mr. D. E. Young, Vice President
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant, Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT UNIT 2 - ISSUANCE OF
AMENDMENT - TECHNICAL SPECIFICATION (TS) CHANGE ON VENTILATION
FILTER TESTING (TAC NO. MA7254)

Dear Mr. Young:

The Commission has issued the enclosed Amendment No. 189 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2. This amendment revises the testing requirements in TS 5.5.11, "Ventilation Filter Testing Program (VFTP)," in response to your application dated November 30, 1999, to include the requirement for laboratory testing of engineered safety feature ventilation system charcoal samples per American Society for Testing and Materials D3803-1989 and the application of a safety factor of 2.0 to the charcoal filter efficiency assumed in the plant design basis dose analyses.

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

Sincerely,

Ram Subbaratnam, Project Manager, Section 2
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosures:

1. Amendment No. 189 to License No. DPR-23
2. Safety Evaluation

cc w/encls: See next page

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 Carolina Power & Light Company
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 Hartsville, South Carolina 29550

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/RA/

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*See previous concurrence

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PM:PDII-S2	LA:PDII-S2	SPLB:NRR	OGC	SC:PDII-S2
RSubbaratnam	EDunnington	JHannon	JEWEL	RColtricia
9/11/2000	9/11/2000	9/11/00	9/11/2000	9/11/2000
Yes/No	Yes/No		Yes/No	Yes/No

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AMENDMENT NO. 189 TO FACILITY OPERATING LICENSE NO. DPR-23 - H. B. Robinson,
UNIT 2

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cc: H. B. Robinson 2 Service List



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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 189
License No. DPR-23

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment filed by Carolina Power & Light Company (CP&L, the licensee), dated November 30, 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-23 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 189 , 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 its date of issuance and shall be implemented within 30 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: September 14, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 189

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains marginal lines indicating the areas of change.

Remove Page

5.0-19

Insert Page

5.0-19

5.5 Programs and Manuals

5.5.11 Ventilation Filter Testing Program (VFTP) (continued)

- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°) and the relative humidity specified below.

<u>ESF Filter System</u>	<u>Penetration</u>	<u>RH</u>
Control Room Emergency	≤2.5%	70%
Spent Fuel Building	≤10%	70%
Containment Purge	≤10%	95%

(continued)



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

VENTILATION FILTER TESTING

H. B. ROBINSON, UNIT 2

DOCKET NO. 50-261

1.0 INTRODUCTION

By application dated November 30, 1999, Carolina Power and Light (the licensee) requested changes to the Technical Specifications (TS) for the H. B. Robinson Steam Electric Plant Unit 2 (HBRSEP2). The proposed amendment would change TS 5.5.11, "Ventilation Filter Testing Program (VFTP)" to include the requirement for laboratory testing of engineered safety feature ventilation system charcoal samples per American Society for Testing and Materials (ASTM) D3803-1989, and the application of a safety factor of 2.0 to the charcoal filter efficiency assumed in the plant design basis dose analyses.

2.0 EVALUATION

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittals. In addition, the staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for HBRSEP2. Based on its review, the staff adopts the TER. In view of the above, and because the NRC staff considers ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in safety-related ventilation systems, the NRC staff finds that the proposed TS changes satisfy the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, and are acceptable.

The NRC received a letter from ASTM in response to a March 8, 2000, *Federal Register* Notice (65 FR 12286) related to revising testing standards in accordance with ASTM D3803-1989 for laboratory testing of activated charcoal in response to GL 99-02. ASTM notified the NRC that the 1989 standard is out of date and should be replaced by D3803-1991 (1998). The staff acknowledges 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, prior to GL 99-02 being issued, approximately one third of nuclear reactors had TS that referenced ASTM D3803-1989, and there are no substantive changes between the 1989 and 1998 versions.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (64 FR 73087, dated December 29, 1999). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

As a result of its evaluation as described above, the staff concludes that the proposed change to TS 5.5.11 is acceptable.

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Subbaratnam

Date: September 14, 2000

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 NO. DPR-23
CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT UNIT NO. 2
DOCKET NO. 50-261

1.0 INTRODUCTION

By letter dated November 30, 1999 (RNP-RA/99-0233), Carolina Power & Light Company (CP&L) 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 H. B. Robinson Steam Electric Plant Unit No. 2. By the same letter dated November 30, 1999, Carolina Power & Light Company requested changes to the Technical Specifications (TS) Sections 5.5.11c, "Ventilation Filter Testing Program (VFTP)," for the Control Room Emergency Ventilation System (CREVS), Spent Fuel Building Ventilation System (SFBVS), and Containment Purge Ventilation System (CPVS) for the H. B. Robinson Steam Electric Plant Unit No. 2. Supplementary docketed information is as follows: (1) February 9, 1973 CP&L letter to R. J. Schemel, USAEC, Refueling Operations; (2) May 21, 1990 CP&L letter to USNRC (NLS 90-027), Control Room Habitability, TMI Item II.D.3.4; and (3) May 17, 1991 USNRC letter to L. W. Eury, CP&L, Amendment No 134 to DPR-23, Control Room Air Cleaning System. 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 bases 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 laboratory charcoal sample testing TS surveillance requirements for the Control Room Emergency Ventilation System (CREVS), Spent Fuel Building Ventilation System (SFBVS) and Containment Purge Ventilation System (CPVS) are shown in Table 1 and Table 2, respectively.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30 °C and relative humidity (RH) of 95 percent for the CPVS are acceptable because they are consistent with the test parameters of ASTM D3803-1989 and the actions requested in GL 99-02. Heaters are installed in the SFBVS to maintain its RH at or below 70%. By letter dated May 17, 1991, the NRC issued Amendment No. 134 to H.B. Robinson's operating license. This amendment permitted changes to TS Sections 3.15 and 4.15 related to the CREVS. TS 4.15.e of this amendment indicates that laboratory testing of charcoal from the Control Room Air Conditioning System is performed at a temperature of 30°C and at a relative humidity of 70% in accordance with ASTM D3803. NRC approval of this license amendment verifies that the control room air conditioning system will maintain 70% RH during design basis accident conditions. Therefore, the proposed test temperature of 30°C and relative humidity (RH) of 70 percent are acceptable for the CREVS and SFBVS. These values are consistent with the test parameters of ASTM D3803-1989 and the actions requested in GL 99-02.

Based on CP&L letter dated May 21, 1990 (NLS-90-027), the CREVS is credited a filter efficiency for radioactive organic iodine of 95%. Based on UFSAR Table 15.7.4-1, the SFBVS is credited a filter efficiency for radioactive organic iodine of 70%. Based on CP&L letter dated February 9, 1973, the assumptions recommended in Safety Guide 25 were used in evaluating the postulated fuel handling accident within containment. This implies that the CPVS is credited a filter efficiency for radioactive organic iodine of 70% per Safety Guide 25. The proposed test penetration for radioactive methyl iodide for the CREVS of $\leq 2.5\%$ results in a safety factor of 2. In addition, the proposed test penetration for radioactive methyl iodide for both the SFBVS and the CPVS of $\leq 10\%$ results in a safety factor of 3 for each system. These proposed safety factors are acceptable because they ensure that the efficiencies credited in the accident analysis are still valid at the end of the surveillance interval. These safety factors are consistent with the minimum safety factor of 2 specified in GL 99-02.

CP&L stated in the November 30, 1999 letter that all of the above systems do not have a face velocity greater than 110 percent of 40 fpm. This is acceptable because it ensures that the testing will be consistent with the operation of the ventilation system during accident conditions. Therefore, it is not necessary to specify the face velocities in the proposed TS change. This is consistent with the errata to GL 99-02 dated August 23, 1999.

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 Fresco and Mano Subudhi

Date: August 24, 2000

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description					Current TS Requirements						
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency of methyl iodide (%)	Test Penetration of methyl iodide (%)	Safety Factor	Test Standard	Test Temp (° C)	Test RH (%)	Test Face Velocity (fpm)
			Res. Time (Sec)	Face Velocity (fpm)							
5.5.11c	Control Room Emergency Ventilation System (CREVS)	2	.409	24 ¹	95 ²	<1	5	ASTM D3803-1986 and RG 1.52, Rev. 2, March 1978 ANSI N510-1980	≤30	≥70	Not stated
5.5.11c	Spent Fuel Building Ventilation System (SFBVS)	2	.278	36 ¹	70 ³	≤10	3	ASTM D3803-1986 and ANSI/ASME N509-1976	Not Stated	≥70	Not stated
5.5.11c	Containment Purge Ventilation System (CPVS)	2	.275	36 ¹	70 ⁴	≤10	3	ASTM D3803-1986 and ANSI/ASME N509-1976	Not Stated	≥70	Not stated

- 1 Face velocity as calculated based on bed depths and residence times.
- 2 Per May 21, 1990 CP&L letter to USNRC (NLS 90-027).
- 3 Per UFSAR Table 15.7.4-1.
- 4 Per February 9, 1973 CP&L letter to R. J. Schemel, USAEC.

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

TABLE 2 - PROPOSED TS REQUIREMENTS											
System Description					Proposed TS Requirements						
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency of methyl iodide (%)	Test Penetration of methyl iodide (%)	Safety Factor	Test Standard	Test Temp (° C)	Test RH	Test Face Velocity (fpm)
			Res. Time (Sec)	Face Velocity (fpm)							
5.5.11c	Control Room Emergency Ventilation System (CREVS)	2	.409	24 ¹	95 ²	≤2.5	2	ASTM D3803-1989	30	70%	Not Stated (40) ⁵
5.5.11c	Spent Fuel Building Ventilation System (SFBVS)	2	.278	36 ¹	70 ³	≤10	3	ASTM D3803-1989	30	70%	Not Stated (40) ⁵
5.5.11c	Containment Purge Ventilation System (CPVS)	2	.275	36 ¹	70 ⁴	≤10	3	ASTM D3803-1989	30	95%	Not Stated (40) ⁵

- 1 Face velocity as calculated based on bed depths and residence times.
- 2 Per May 21, 1990 CP&L letter to USNRC (NLS 90-027).
- 3 Per UFSAR Table 15.7.4-1.
- 4 Per February 9, 1973 CP&L letter to R. J. Schemel, USAEC.
- 5 Per ASTM D3803-1989.

Mr. D. E. Young
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