October 4, 2002

Mr. J. W. Moyer, 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 CHANGE REGARDING SELECTIVE IMPLEMENTATION OF ALTERNATIVE RADIOLOGICAL SOURCE TERM (TAC NO. MB4632)

Dear Mr. Moyer:

The Commission has issued the enclosed Amendment No. 195 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2). This amendment consists of changes to the Technical Specifications (TS) in response to your application dated March 13, 2002, as supplemented May 10, August 14, September 5, September 23, and October 4, 2002.

The proposed amendment would revise the TS for HBRSEP2 to permit selective implementation of alternative radiological source term and modify the TS requirement for movement of irradiated fuel and performing core alterations. This TS revision is based on a reanalysis of the limiting Fuel Handling Accident using the alternate source term in accordance with Title 10 of the *Code of Federal Regulations* Part 50, Section 50.67, "Accident source term" and Regulatory Guide 1.183, Revision 0, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000.

It is noted that in your letter dated May 10, 2002, you have committed to performing a leak rate test of the control room envelope before the end of March 2003. This will be tracked under the provisions of the Agency Commitment Tracking Procedure (NRR Office Letter No. 900).

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

Sincerely,

/RA/

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. 195 to License No. DPR-23
2. Safety Evaluation

cc w/encls: See next page

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

October 4, 2002

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT UNIT 2 - ISSUANCE OF AMENDMENT - TECHNICAL SPECIFICATION CHANGE REGARDING SELECTIVE IMPLEMENTATION OF ALTERNATIVE RADIOLOGICAL SOURCE TERM (TAC NO. MB4632)

Dear Mr. Moyer:

The Commission has issued the enclosed Amendment No. 195 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBRSEP2). This amendment consists of changes to the Technical Specifications (TS) in response to your application dated March 13, 2002, as supplemented May 10, August 14, September 5, September 23, and October 4, 2002.

The proposed amendment would revise the TS for HBRSEP2 to permit selective implementation of alternative radiological source term and modify the TS requirement for movement of irradiated fuel and performing core alterations. This TS revision is based on a reanalysis of the limiting Fuel Handling Accident using the alternate source term in accordance with Title 10 of the *Code of Federal Regulations* Part 50, Section 50.67, "Accident source term" and Regulatory Guide 1.183, Revision 0, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," dated July 2000.

It is noted that in your letter dated May 10, 2002, you have committed to performing a leak rate test of the control room envelope before the end of March 2003. This will be tracked under the provisions of the Agency Commitment Tracking Procedure (NRR Office Letter No. 900).

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

Sincerely,

/RA/

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. 195 to License No. DPR-23
2. Safety Evaluation

cc w/encls: See next page

TSPages: ML022980530 **Package:ML022790011**

Accession No. ML022790010 *Staff SE **See previous concurrence

PM:PDII-S2	Intern:PDII/S2	LA:PDII-S2	DSSA:SPSB	DRIP:RORP	IEHB:DIPM	OGC	SC:PDII-2
RSubbaratnam	MMcConnell	EDunnington	SER DTD	SER DTD	DCT**	APH**	AHowe
10/04/02	10/04/02	10/04/02	9/12/2002	8/30/2002	9/30/2002	9/27/2002	10/04/02
Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

OFFICIAL RECORD COPY

AMENDMENT NO. 195 TO FACILITY OPERATING LICENSE NO. DPR-23 - H. B. Robinson, UNIT 2

DISTRIBUTION:
PUBLIC
PDII-2 Reading File
OGC
P. Hearn, DRIP/RORP
H. Berkow, DLPM/NRR
K. Jabbour, DLPM
M. Reinhart, SPSB, DSSA
H. Walker, SPLB, DSSA
P. Hearn, RORP, DRIP
J. Hayes, SPSB, DSSA
L. Brown, SPSB, DSSA
D. Trimble, IEHB, DIPM
G. Hill (2)
R. Subbaratnam
M. McConnell
E. Dunnington
ACRS
S. Cahill, RII

cc: H. B. Robinson 2 Service List

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

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

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 195
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) application dated March 13, 2002, as supplemented May 10, August 14, September 5, September 23, and October 4, 2002, 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. 195, 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 60 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Allen G. Howe, 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: October 4, 2002

ATTACHMENT TO LICENSE AMENDMENT NO. 195

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

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	Insert Pages
3.3-39	3.3-39
3.3-40	3.3-40
3.3-41	3.3-41
3.7-22	3.7-22
3.7-23	3.7-23
3.7-24	3.7-24
3.7-25	3.7-25
3.7-26	3.7-26
3.9-4	3.9-4
3.9-10	3.9-10
3.9-11	3.9-11

SAFETY EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

TECHNICAL SPECIFICATION CHANGE REQUEST TO IMPLEMENT 10 CFR 50.67

ALTERNATIVE SOURCE TERM TO THE TECHNICAL SPECIFICATIONS

H. B. ROBINSON, UNIT 2

DOCKET NO. 50-261

1.0 INTRODUCTION

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.90, on March 13, 2002, as supplemented May 10, August 14, September 5, September 23, and October 4, 2002, Carolina Power & Light Company (CP&L) submitted a License Amendment Request (LAR) to amend the H. B. Robinson Steam Electric Plant, Unit 2 (HBRSEP2) Facility Operating License DPR-23. The application proposed Technical Specifications (TS) changes to incorporate 10 CFR Part 50, Section 50.67, "Accident source term" into the HBRSEP2 TS.

On August 14, September 5, and September 23, 2002, CP&L submitted additional information. This additional information involved incorporating TS Task Force (TSTF) Traveler TSTF-51, "Revise containment requirements during handling irradiated fuel and core alterations," Revision 2 to NUREG-1431, "Standard Technical Specifications Westinghouse Plants" into their proposed TS revision. The licensee used the Alternate Source Term (AST) of 10 CFR Part 50.67 to calculate the decay time for applying the guidelines of TSTF-51. TSTF-51 provides allowances for revising the TS in order to eliminate Engineered Safety Feature (ESF) operability requirements during core alterations and during the movement of sufficiently decayed irradiated fuel.

The licensee proposes to eliminate selected ESF TS requirements during core alterations, and during the handling of irradiated fuel that is sufficiently decayed (i.e., decayed for at least 56 hours). The affected TS are: TS 3.3.6, "Containment Ventilation Isolation Instrumentation," TS 3.9.3, "Containment Penetrations," and TS 3.9.7, "Containment Purge Filter System." The licensee also proposes that selected ESF requirements only applicable during core alterations be eliminated from the TS. The affected TS are: TS 3.3.7, "Control Room Emergency Filtration System (CREFS) Actuation Instrumentation," TS 3.7.9, "CREFS," TS 3.7.10, "Control Room Emergency Air Temperature Control (CREATC)," and TS 3.9.6, "Refueling Cavity Water Level." The corresponding sections of the TS Bases are also revised. The May 10, August 14, September 5, September 23, and October 4, 2002, supplements contained clarifying information only and did not change the initial proposed no significant hazards consideration determination or expand the scope of the initial application.

2.0 BACKGROUND

The licensee states that the purpose of this request is to provide flexibility in scheduling outage tasks and to modify unnecessarily restrictive containment closure and fuel handling building ventilation system requirements. The elimination of the selected HBRSEP2 TS ESF requirements during core alterations and the movement of sufficiently decayed irradiated fuel is proposed using NRC-approved TSTF-51 as a model.

3.0 REGULATORY EVALUATION

The NRC staff reviewed the proposed changes for compliance with 10 CFR 50.36 and agreement with the precedent as established in NUREG-1431. Section 182a of the Atomic Energy Act of 1954, as amended, requires applicants for nuclear power plant operating licenses to include TS, which are derived from the plant safety analyses, as part of the license. In general, licensees cannot justify TS changes solely on the basis of having adopted the model standard TS. As a part of its review the staff makes a determination that the proposed changes maintain adequate safety. Changes that result in relaxation (less restrictive condition) of current TS requirements require detailed justification. Such changes may be supported by evidence that the change is less restrictive than the licensee's current requirement but nonetheless still affords adequate assurance of safety when judged against current regulatory standards.

This amendment changes the design basis in that the licensee is adopting the AST into the design basis for the fuel handling accident and is also implementing the guidance contained in TSTF-51.

The general intent of this amendment request is to facilitate improvements in the performance of refueling activities. With the current TS requirements, several outage tasks must be interrupted when the equipment hatch is closed because of core alterations and fuel handling activities. Work stoppage to move large pieces of equipment into containment affects the critical path of the outage, and these interruptions result in work being delayed or rescheduled to less efficient times in an outage. Also, because of the high level of modification, maintenance, and repair activities during outages, increased wear on the two airlock doors to the containment can occur, resulting in increased repair cost. Such repairs also create a bottleneck in processing personnel and equipment in and out of the containment. In addition, the actual establishment of the containment boundary several times during an outage further restricts access and requires additional resources.

The detailed application of this general framework, and additional specialized guidance in this amendment request, are discussed in Section 4.0 below.

4.0 TECHNICAL EVALUATION

4.1 Description of Changes

The TS are being revised to eliminate Containment Isolation, and Control Room Filtration and Temperature Control ESF operability requirements during core alterations and during movement of sufficiently decayed irradiated fuel.

4.1.1 Evaluation for TSTF-51

Following reactor shutdown, rapid decay of the short-lived fission products quickly reduces the fission product inventory present in irradiated fuel. The proposed TS changes are based on a specific minimum decay period, which takes advantage of the reduced radionuclide inventory available for release in the event of a Fuel Handling Accident (FHA). This specific decay period is calculated to be 56 hours. Beyond 56 hours, containment isolation is no longer required to mitigate the consequences of the FHA. (The FHA is the bounding accident during fuel handling and core alterations.) Fuel that has not decayed for 56 hours or longer is termed "recently irradiated fuel" and ESFs must remain operable when moving such fuel.

The "recently irradiated fuel" concept provides a mechanism to apply a minimum fission product decay time to applicable TS. Fuel that is not sufficiently decayed to allow relaxation of the ESF OPERABILITY requirement is referred to as "recently" irradiated fuel. During movement of recently irradiated fuel, ESF equipment is operable to ensure, in the case of an FHA, the off-site doses remain below 25% of 10 CFR Part 100 limits. Analysis demonstrates that at least a 56-hour decay time will sufficiently reduce the inventory of short-lived radionuclides. "Recently irradiated fuel" is therefore defined as fuel that has decayed less than or equal to 56 hours. When using 56 hours for the decay time in the design-basis FHA, the radiological consequences are within the acceptance criteria of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Section 15.7.4, and General Design Criterion (GDC) 19.

The licensee considered the following TSTF-51 guidelines for systems removed from service during movement of irradiated fuel that has decayed for 56 hours or more and during core alterations:

- "During fuel handling/core alterations, ventilation system and radiation monitor availability (as defined in NUMARC 91-06) should be assessed, with respect to filtration and monitoring of releases from the fuel. Following shutdown, radioactivity in the fuel decays fairly rapidly. The basis of the TS amendment is the reduction in accident doses due to such decay. The goal of maintaining ventilation system and radiation monitor availability is to reduce doses even further below that provided by the natural decay.

- A single normal or contingency method to promptly close primary or containment penetrations should be developed. Such prompt methods need not completely block the penetration or be capable of resisting pressure.

The purpose of the "prompt methods" mentioned above is to enable ventilation systems to draw the release from a postulated fuel handling accident in the proper direction such that it can be treated and monitored."

In order to meet these TSTF-51 guidelines, in its correspondence dated October 4, 2002, CP&L committed to incorporate the following information into its shutdown safety procedures:

- A statement specifying that during fuel handling/core alterations, the ability to filter and monitor any release will be maintained. In particular, the Containment Purge Filter System and its associated radiation monitors will be available but are not required to be Operable.

- A statement specifying that the ability to restore containment capability during fuel handling/core alterations will be maintained. A contingency method to promptly close any external openings in the containment will be developed.

- A statement specifying that, when necessary, the Station Shift Supervisor will ensure that necessary actions are taken to close all external openings in the containment.

Closing external openings in the containment, however, is not credited in the FHA analysis and is not required to meet the dose release limits of the Standard Review Plan. CP&L will have programmatic controls in place to close the containment prior to implementation of this amendment.

The dominant revision to TS Limiting Conditions for Operation (LCOs) is to eliminate the requirement to suspend the movement of decayed irradiated fuel and core alterations when the Containment Isolation and Purge Filter Systems are inoperable. The TS still maintain the requirement to suspend the movement of recently irradiated fuel when these ESF functions are inoperable.

4.1.2 Amended TS

The proposed TS amendment affecting the following LCOs eliminates the terms “during CORE ALTERATIONS/during movement of irradiated fuel” and adds the term “during movement of recently irradiated fuel”:

LCO 3.3.6 Containment Ventilation Isolation Instrumentation
LCO 3.9.3 Containment Penetrations
LCO 3.9.7 Containment Purge Filter System.

This TS amendment would restrict the OPERABILITY requirement for these systems to the movement of recently irradiated fuel assemblies within the containment. This operability restriction envelops the situations that would require these systems to be operable in order to mitigate the consequences of an FHA. Since the postulated FHA used by the licensee to revise these TS results in radiological consequences that are within the acceptance criteria of NUREG-0800, Section 15.7.4, and GDC 19, the staff concludes that these revisions are acceptable.

The proposed TS amendment affecting the following LCOs eliminates the term “during CORE ALTERATIONS”:

LCO 3.3.7 Control Room Emergency Filtration System (CREFS) Actuation Instrumentation
LCO 3.7.9 CREFS
LCO 3.7.10 Control Room Emergency Air Temperature Control (CREATC)
LCO 3.9.6 Refueling Cavity Water Level.

Removing “during CORE ALTERATIONS” from the applicability results in revising the OPERABILITY requirement for these systems to the movement of irradiated fuel assemblies within the containment. This operability restriction envelops the situations that would require these systems to be operable in order to mitigate the consequences of an FHA. Since the proposed revisions to the TS do not result in changes to the design basis, the staff concludes that these revisions are acceptable.

4.1.3 Summary - Evaluation for TSTF-51

The licensee is proposing to revise the TS in order to eliminate selected ESF operability requirements during core alterations and the movement of sufficiently decayed irradiated fuel. The NRC staff review finds the proposed changes comply with 10 CFR 50.36 and are consistent with TSTF-51.

In their supplement dated August 14, 2002, under proposed changes, the licensee committed to incorporate, into the HBRSEP2, Unit 2, TS Bases, a definition of "recently irradiated fuel" and the appropriate decay time (56 hours in the analysis provided with the submittal). This procedure is consistent with Bases changes described in TSTF-51, Revision 2, and any changes to that definition will be done through the TS Bases control program described in TS 5.5.14.

On this basis, the NRC staff concludes that the proposed changes to the HBRSEP2 TS are acceptable.

4.2 Probabilistic Risk Assessment Evaluation

4.2.1 Radiological Analysis

The licensee provided an analysis of the consequences of an FHA to demonstrate the acceptability of their proposed amendment request. The licensee's analysis was contained in submittals dated March 13, 2002, and August 14, 2002. The detailed analysis was in the March 13th submittal. Resultant doses were modified due to a change in the control room atmospheric dispersion (χ/Q) values, which were presented in the August 14th submittal, and resulted in modification of the control room operators' doses.

The licensee's FHA analysis involved the utilization of the AST and an assessment of two cases. The first entailed an FHA occurring within containment. The second assumed an FHA within the fuel building. In both cases, the licensee assumed the dropping of a fuel assembly that resulted in damage to all of the fuel rods in the dropped assembly.

The gap activity from the damaged rods was assumed to be released to the refueling water cavity for the accident within containment and to the fuel storage pool water for the accident within the fuel building. A majority of the gap activity in the elemental form was assumed to be retained in the water. None of the gap activity in the organic form was assumed to be retained by the water. The activity not retained in the water was assumed to be released to the building.

For the accident within the containment, the licensee did not assume operation of the containment purge system as it had in previous analyses. Thus, no credit was assumed for removal of the airborne iodine from the containment atmosphere by the purge system.

For the FHA within the fuel building, the licensee assumed that the fuel building ventilation system was operating and that the charcoal absorber was effective in removing the iodine that became airborne. For both cases, the activity released to the buildings was assumed to be discharged to the environment over a 2-hour period.

The licensee assumed the gap inventory of the damaged fuel rods was in an assembly that had been operated at 1.8 times core average power. The licensee assumed decay times since shutdown from power of 56 hours for the accident within the containment and 8 hours for the accident within the fuel building. It was also assumed that a minimum of 23 feet of water was above the fuel in the refueling cavity for the accident within containment and a minimum of 21 feet was above the fuel in the fuel storage pool for the accident in the fuel building. For these depths, the licensee assumed an overall decontamination factor of 200 for the refueling cavity and 138 for the fuel storage pool.

4.2.2 Control Room Mode of Operation

The licensee's analyses assumed that the control room's emergency filtration system did not begin operation until 1 hour following the onset of the accident. During the first hour, 400 cfm entered the control room through the normal ventilation system unfiltered. In addition, 300 cfm was assumed to leak into the control room unfiltered. After 1 hour, the control room's emergency ventilation system was assumed to begin operation. With it operating, 400 cfm of outside air would be filtered and brought into the control room. In addition, 2600 cfm would be withdrawn from the control room envelope, recirculated and filtered. During the operation of the control room emergency ventilation system, unfiltered inleakage into the control room was assumed to be 230 cfm.

The licensee's values for inleakage into the control room were not based upon test data. In their May 10, 2002, submittal (which seeks full implementation of the AST for all accidents other than the FHA), the licensee committed to perform a leak rate test of the control room envelope prior to fully implementing the AST. In that letter, the licensee committed to (1) providing a single value for inleakage into the control room envelope; (2) revising the analyses in the submittal if the assumed value for inleakage is lower than the test results; and (3) developing a comprehensive corrective action plan if testing and re-analysis indicates that the current licensing basis cannot demonstrate compliance with GDC 19 of Appendix A to 10 CFR Part 50. The licensee is expecting to conduct this test during the first quarter of calendar year 2003.

4.2.3 NRC Staff Assessment

The licensee's analysis above, which does not give credit for operability of CREFS system until 1 hour into the accident, did not result in acceptable dose consequences. Hence, the NRC staff has performed an independent calculation of the offsite and onsite consequences of an FHA, with the assumption that the licensee will automatically isolate the control room envelope upon an FHA signal, and that CREFS automatic function will be available. Table 1 contains details of the staff assumptions utilized in this calculation. The results of staff calculations were satisfactory as shown in Table 2. In its August 14, 2002, letter, the licensee confirmed that the proposed TS changes did not remove any TS operability requirement for automatic function that would require substitution of manual operator action for the automatic function to mitigate design-basis accidents and events assumed in the staff model. In a September 5, 2002, letter, the licensee confirmed that the automatic actuation function will be functional during an FHA, and that no manual operator actions would be substituted for the automatic actuation. Consequently, the NRC staff's analysis of the control room operators' doses assumed that an FHA would result in the automatic initiation of the control room emergency ventilation system immediately upon onset of the accident.

4.2.4 Summary - Radiological Analysis

The results of the NRC staff's calculations are presented in Table 2. Both the onsite and offsite doses were found to be acceptable for the proposed amendment. It should be noted that the NRC staff is approving the proposed amendment based upon the licensee's commitment to perform a test of the control room envelope's integrity during the first quarter of calendar year 2003, as stated above. This will be tracked under the provisions of the Agency Commitment Tracking Procedure ("NRR Office Letter No. 900, Managing Commitments Made By Licensees to the NRC, March 24, 2000). The NRC staff has also concluded that this approval is acceptable until the results of the control room test are known given the fact that the potential challenge to the control room operators will be limited since fuel handling operations will occur for a short period of time during October 2002 (during the fall 2002 refueling outage), and the probability of an FHA occurring during this period is low.

4.3 Atmospheric Relative Concentration Estimates

4.3.1 Meteorological Data

CP&L calculated new relative concentration (χ/Q) estimates for the FHA dose assessment described above using onsite meteorological data collected between calendar years 1988 through 1996. These data were measured at 11 and 62 meters above grade at the Robinson site. The licensee has stated that the tower area is on generally flat terrain with trees approximately 20 to 40 feet in height within about 200 to 250 feet of the measurement tower. The HBRSEP2 Updated Final Safety Analysis Report states that to meet the recommended data recovery cited in Regulatory Guide (RG) 1.23, "Onsite Meteorological Programs," the licensee performs scheduled calibrations in accordance with the Robinson Emergency Plan requirements. Wind and temperature sensors are changed and replaced with calibrated sensors traceable to the National Bureau of Standards. Twin redundant delta temperature sensors are operated simultaneously and comparisons made between the two systems. Data are accessed remotely by a meteorological contractor to review and check for consistency and to periodically compare the data against National Weather Service data. Any erroneous data are discarded prior to archival.

The NRC staff performed a review of the meteorological data submitted by CP&L using the methodology described in NUREG-0917, "Nuclear Regulatory Commission Staff Computer Programs for Use with Meteorological Data." Further review was performed using a computer spreadsheet. Joint wind speed, wind direction and atmospheric stability data recovery were in the upper 90 percentiles except in 1996, when joint recovery of one group of measurements was slightly less than 90 percent. Examination of the data revealed infrequent occurrences of wind data remaining unchanged for two or more consecutive hours frequently or for a longer duration than would be expected due to typical meteorological processes. This suggests that data recovery may have been slightly less than cited above. However, even with the uncertainty, the NRC staff estimates that the recovery is still well above 90 percent and the uncertainties will not have a significant impact on the licensee's relative concentration (χ/Q) estimates for this dose assessment. Thus, joint data recovery for the 9-year period met the recommendations of RG 1.23.

While there was some year-to-year variability in reported atmospheric stability during the 9-year period, frequency of occurrence as a function of time of day was consistent with expected meteorological conditions. With only a few exceptions, stable and neutral conditions were

reported to occur at night and unstable and neutral conditions during the day. The longest continuous occurrence of a single unstable category was 11 consecutive hours.

Wind direction frequency occurrence at both the lower and upper levels showed distinct bimodal flow, reflecting the site area topography. Winds at the lower level were predominantly from the north northeast, south and south southwest. Winds at the upper level were mostly from the north northeast, southwest and south southwest. Year-to-year frequency of occurrence within those directions was more variable at the upper level than the lower level. Wind speed data indicated a relatively high occurrence of light winds at the lower level with more year-to-year variability in the frequency of light winds than at the upper level. The lower measurements may have been impacted by trees in the neighborhood of the tower. Standard practice recommends that potential obstructions be a minimum of ten times their height away from measurement instrumentation. Thus, trees 20-feet tall should be at least 200 feet from the measurement tower.

4.3.2 EAB and LPZ Relative Concentration Estimates

The licensee calculated χ/Q values for the exclusion area boundary (EAB) and low population zone (LPZ) using site-specific inputs and the PAVAN computer code. The PAVAN code, documented in NUREG/CR-2858, "PAVAN: An Atmospheric Dispersion Program for Evaluating Design Basis Accidental Releases of Radioactive Materials from Nuclear Power Plants," uses the methodology described in RG 1.145, "Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants." The licensee made calculations for an EAB distance of 425 meters and LPZ distance of 7242 meters. Releases were assumed to be ground level.

4.3.3 Control Room Relative Concentration Estimates

CP&L used the ARCON96 methodology (NUREG/CR-6331, Revision 1, "Atmospheric Relative Concentrations in Building Wake") for calculation of control room χ/Q values with a modification to the surface roughness length and averaging sector width constant. These two modifications are acceptable to the NRC staff. Calculations were made for postulated releases from the closest point of the containment building and from the Fuel Handling Building wall to the Control Room intake. Both were assumed to be ground-level point releases.

4.3.4 Summary - Atmospheric Relative Concentration Estimate Analysis

The NRC staff has reviewed the inputs to the PAVAN and ARCON96 codes and found them to be generally consistent with NRC staff practice, site configuration drawings, and other information provided by CP&L. Although the NRC staff is of the opinion that trees may have an influence on meteorological measurements at the Robinson site, the NRC staff does not have sufficient basis for concluding that the impact is significant enough to reject the dose assessment for this amendment given the assumptions used in the calculations. Based on this review, the NRC staff finds the χ/Q values listed in Table 3 acceptable for use in this dose assessment.

4.4 Summary

The NRC staff finds, with reasonable assurance, that HBRSEP2 will continue to provide sufficient safety margins with adequate defense-in-depth to address unanticipated events and to compensate for uncertainties in accident progression and in analysis assumptions and

parameters. The NRC staff concludes that the proposed AST implementation and the associated TS changes are acceptable from the standpoint of radiological consequences. These changes are also consistent with the staff's guidance in TSTF-51. The NRC staff finds these changes acceptable.

5.0 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.

6.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a surveillance requirement. 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 (67 FR 21285). 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 this amendment.

7.0 CONCLUSION

The NRC staff has concluded, based on the consideration 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. Therefore, the proposed changes are acceptable.

Principal Contributors: P. Hearn
J. Hayes
L. Brown

Date: October 4, 2002

Table 1 Assumptions for Fuel Handling Accidents

Parameter	Value
Core Power (MWT)	2346
Total Number of Assemblies in Core	157
Highest Power Discharged Assembly	
Peak to Average Ratio	1.8
Occurrence of Accident (hours after shutdown)	
Within containment	56
Within fuel handling building	8
Damaged fuel rods	one assembly
Gap Fraction	
^{131}I	0.08
^{85}Kr	0.10
Other Noble Gases and Halogens	0.05
Alkali Metals	0.12
Iodine Gap Inventory	
Organic (percent)	0.15
Elemental (percent)	99.85
Refueling Cavity Water Level (ft)	23
Pool DF	
Organic	1
Elemental	500
Fuel Storage Pool Water Level (ft)	21
Pool DF	
Organic	1
Elemental	173
Fuel Building Adsorber Efficiency	
Elemental (percent)	90
Organic (percent)	70
Control Room χ/Q Value (sec/m^3)	4.15E-3

Offsite χ/Q Values (sec/m^3)	
EAB	1.77E-3
LPZ	8.92E-5
Breathing Rate (m^3/sec)	3.47E-4

Control Room

Free Volume (ft^3)	20124
Normal Ventilation Flow (cfm)	400
Time to Initiate Control Room Emergency Ventilation System (hr)	0
Makeup Filter Efficiency	
Elemental and Organic Forms of Iodine (percent)	95
Makeup Air Filtration Rate (cfm)	400
Recirculation Air Filtration Rate (cfm)	2600
Unfiltered Air Infiltration Rate (cfm)	
0-1 hour	300
1-8 hours	230
Occupancy Factor	1

Table 2 Onsite and Offsite Doses Resulting from a Fuel Handling Accident (Rem)

Accident	**EAB**	**LPZ**	**Control Room Operators**
Within Containment	6.0	0.30	1.2
Inside Fuel Bldg.	5.9	0.30	0.53
Regulatory Limit	6.3	6.3	5

Table 3
Robinson Relative Concentration (χ/Q) Values

Offsite χ/Q values (s/m^3)

EAB	0 - 2 hrs	1.77 E-3
LPZ	0 - 2 hrs	8.92 E-5

Onsite χ/Q values (s/m^3)

	FHA in Containment	FHA in Fuel Handling Building
0-2 hrs	4.15 E-03	1.24 E-03
2-8 hrs	2.74 E-03	8.97 E-04
8-24 hrs	1.17 E-03	3.62 E-04
1-4 days	8.18 E-04	2.58 E-04
4-30 days	6.74 E-04	2.14 E-04

Mr. J. W. Moyer
Carolina Power & Light Company

H. B. Robinson Steam Electric Plant,
Unit No. 2

cc:

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

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

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
H. B. Robinson Steam Electric Plant
2112 Old Camden Road
Hartsville, South Carolina 29550

Mr. T. P. Cleary
Plant General Manager
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant, Unit No. 2
3581 West Entrance Road
Hartsville, SC 29550

Mr. T. D. Walt
Director of Site Operations
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant, Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

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

Supervisor, Licensing/Regulatory Programs
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

Ms. Beverly Hall, Acting Director
N.C. Department of Environment
and Natural Resources
Division of Radiation Protection
3825 Barrett Dr.
Raleigh, North Carolina 27609-7721

Mr. Robert P. Gruber
Executive Director
Public Staff - NCUC
4326 Mail Service Center
Raleigh, North Carolina 27699-4326

Mr. Virgil R. Autry, Director
South Carolina Department of Health
Bureau of Land & Waste Management
Division of Radioactive Waste Management
2600 Bull Street
Columbia, South Carolina 29201

Mr. Terry C. Morton
Manager
Performance Evaluation and
Regulatory Affairs CPB 7
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602-1551

Mr. John H. O'Neill, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW.
Washington, DC 20037-1128

Mr. B. L. Fletcher III
Manager - Regulatory Affairs
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550-0790