Progress Energy

10 CFR 50.90

Serial: RNP-RA/03-0016

MAR 1 2 2003

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23

SUPPLEMENT TO AMENDMENT REQUEST REGARDING FULL IMPLEMENTATION OF THE ALTERNATIVE SOURCE TERM (TAC NO. MB5105)

Ladies and Gentlemen:

By letter dated May 10, 2002, Carolina Power and Light (CP&L) Company submitted a request for Technical Specifications change regarding full implementation of the Alternative Source Term (AST) for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

Requests for Additional Information (RAI) related to this change were received from the NRC in a letter dated June 26, 2002, and in a conference call on July 26, 2002. The response to specific questions required a reanalysis of the atmospheric dispersion factors used in the accident dose analyses. One purpose of this letter is to provide the revised dose analyses results based on the revised atmospheric dispersion factors. An additional purpose of this letter is to respond to the previously received RAI.

In the HBRSEP, Unit No. 2, letter dated July 25, 2002, which responded to a question in the June 26, 2002, RAI, CP&L agreed to revise the definition of Dose Equivalent I-131 that was proposed in the May 10, 2002, letter. Therefore, this letter provides a revised proposed change to the definition of Dose Equivalent I-131 on Technical Specifications Page 1.1-2 that supercedes the change previously requested to that page by the May 10, 2002, submittal.

In a letter dated November 5, 2002, the NRC issued License Amendment No. 196 for HBRSEP, Unit No. 2, which authorized a power level increase, but also applied a condition that limited cycle operation to 504 effective full power days (approximately 95% of the planned cycle length). This Additional Condition was added to Appendix B of the Operating License. In the Safety Evaluation attached to that letter, the NRC stated that operation beyond 504 effective full power days depends on the results of subsequent NRC staff review of the May 10, 2002, AST submittal. Therefore, the specified Additional Condition should be removed based upon approval of this AST license amendment request.

Progress Energy Carolinas, Inc.
3581 West Entrance Road
Hartsville, SC 29550

A001

Attachment I provides an Affirmation pursuant to 10 CFR 50.30(b).

Attachment II provides the revised dose analyses results based on the revised atmospheric dispersion factors.

Attachment III provides the HBRSEP, Unit No. 2, responses to the previously received RAI.

Attachments IV and V provide a markup and retyped version, respectively, of the affected Technical Specifications and Operating License pages.

The revised dose analyses results and the responses to the previously received RAI provide additional information that does not affect the basis or justification for the proposed Technical Specifications change, including the evaluation of No Significant Hazards Consideration and Environmental Impact Consideration provided in the May 10, 2002, submittal. However, the May 10, 2002, No Significant Hazards Consideration and Environmental Impact Consideration addressed the originally proposed definition of Dose Equivalent I-131, which is being changed with this submittal. Therefore, Attachment VI provides a revised version of the No Significant Hazards Consideration and Environmental Impact Consideration, with the only changes being in the Dose Equivalent I-131 definition, and the addition of a discussion regarding removal of the Appendix B license condition.

In the May 10, 2002, submittal, CP&L committed to perform a control room envelope tracer gas inleakage test to provide technical justification for inleakage rate assumptions in the dose analyses. Testing was performed during the week of January 20th, 2003. Preliminary results indicate that the proposed AST inleakage rate assumptions are larger than, and therefore bounding for, the as-found control room inleakage. The final results of this testing will be submitted to the NRC in a separate letter, after receipt of the final test report.

CP&L (now doing business as Progress Energy Carolinas, Inc.) requests approval of the requested license amendment and Technical Specifications changes before December 2003, with implementation occurring within 60 days of approval. As noted above, it is requested that this approval include removal of the Appendix B Additional Condition regarding the operating cycle limitation of 504 effective full power days.

In accordance with 10 CFR 50.91(b), the State of South Carolina is being provided a copy of this letter.

If you have any questions concerning this matter, please contact Mr. C. T. Baucom.

Sincerely,

B. L. Fletcher III
Manager - Support Services - Nuclear

Attachments:

I. Affirmation
II. Revised Dose Analyses Results
III. Responses to NRC Requests for Additional Information
IV. Markup of Technical Specifications and Operating License Pages
V. Retyped Technical Specifications and Operating License Pages
VI. Revised No Significant Hazards Consideration and Environmental Impact Consideration

RAC/rac

c: Mr. T. P. O'Kelley, Director, Bureau of Radiological Health (SC)
Mr. H. J. Porter, Director, Division of Radioactive Waste Management (SC)
Mr. L. A. Reyes, NRC, Region II
Mr. C. Patel, NRC, NRR
NRC Resident Inspectors, HBRSEP
Attorney General (SC)

AFFIRMATION

The information contained in letter RNP-RA/03-0016 is true and correct to the best of my information, knowledge, and belief; and the sources of my information are officers, employees, contractors, and agents of Carolina Power and Light Company. I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 12 March 2003

J. W. Moyer
Vice President, HBRSEP, Unit No. 2

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

REVISED DOSE ANALYSES RESULTS

Background

In a letter dated March 13, 2002, Carolina Power and Light (CP&L) Company's H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, requested a Technical Specifications change regarding selective implementation of the Alternative Source Term (AST). This change involved the reanalysis of the Fuel Handling Accident (FHA) using the AST. In support of the revised dose analyses, the submittal also presented a revised analysis of the offsite and onsite accident atmospheric dispersion factors (X/Qs). The new X/Q values were calculated using a different methodology and meteorological data set from that used in the existing licensing basis.

In a letter dated May 10, 2002, HBRSEP, Unit No. 2, requested a Technical Specifications change regarding full implementation of the AST. That letter provided a reanalysis of the dose consequences from the Main Steam Line Break (MSLB), Reactor Coolant Pump (RCP) Locked Rotor, Rod Control Cluster Assembly (RCCA) Withdrawal, Steam Generator Tube Rupture (SGTR), Large Break Loss-of-Coolant Accident (LOCA), and Waste Gas Decay Tank Rupture (WGDTR). These analyses also relied on the reevaluation of the accident X/Q values using the same methodology and meteorological data set as the FHA analysis submitted on March 13, 2002.

In a letter dated May 16, 2002, HBRSEP, Unit No. 2, requested a Technical Specifications change to increase authorized reactor power. This request relied on the AST dose analyses in the two submittals noted above, which were performed using the proposed increased reactor power level.

In a letter dated June 26, 2002, the NRC issued a Request for Additional Information (RAI) in regard to the amendment request to increase authorized reactor power, which also included questions related to the radiological analyses. In a letter dated July 25, 2002, HBRSEP, Unit No. 2, provided a response to that RAI, which noted that the request for increased reactor power would be separated from the request for full implementation of the AST. Separation of these two licensing actions supported an improved NRC review schedule for the power uprate request by removing the AST review from the scope of that licensing action. Therefore, the July 25, 2002, RAI response answered those questions necessary for power uprate, but specified that questions related to the AST submittal would be answered in a subsequent response. One AST-related question concerning the definition of Dose Equivalent I-131 was answered, and HBRSEP, Unit No. 2, agreed to revise that definition, which is accomplished by this submittal.

In a conference call on July 26, 2002, the NRC requested additional information regarding the meteorological data and accident dispersion models used to calculate the X/Q values. Timely review of the meteorological data was necessary to support the approval of the selective application of the AST to the FHA prior to the fall 2002 refueling outage.

In a letter dated August 12, 2002, HBRSEP, Unit No. 2, submitted a supplement to the request to increase authorized reactor power. This request separated the power level increase from reliance on the full implementation of the AST analyses. Based on the dose analyses using the current licensing basis source terms and acceptance criteria, HBRSEP, Unit No. 2, concluded that operation at the increased power level was acceptable provided the cycle length was limited to 504 effective full power days (approximately 95% of the planned cycle length).

In a letter dated August 14, 2002, HBRSEP, Unit No. 2, provided responses to NRC requests for additional information related to selective implementation of the AST for the FHA. These questions had been received during conference calls, including the July 26, 2002, conference call noted above. Consideration of the staff's questions resulted in the need to revise the meteorological data set input into the ARCON96 code for calculation of the onsite X/Q values. The revised ARCON96 analyses resulted in a very small change (some increased slightly and some decreased slightly) in the calculated X/Q at the control room and Technical Support Center/Emergency Operations Facility (TSC/EOF). Therefore, the dose analyses for the FHA were rerun with the revised X/Q values. The August 14, 2002, letter provided the revised X/Q values and revised FHA dose analyses.

The use of the revised meteorological data set also impacts the onsite X/Q values for the MSLB, RCP Locked Rotor, RCCA Withdrawal, SGTR, Large Break LOCA, and WGDTR accidents analyzed for the full implementation of the AST. However, since review of the full implementation submittal had been delayed until after the fall 2002 refueling outage, these analyses were not updated in the August 14, 2002, letter. One purpose of this letter is to provide the revised X/Q values and dose analyses results for these other accidents.

In a letter dated October 31, 2002, HBRSEP, Unit No. 2, submitted a request for a proposed license condition on the increased reactor power level amendment that would limit the cycle length to 504 effective full power days. That letter noted that this condition should be removed when the full AST license amendment is approved. This condition was added to the HBRSEP, Unit No. 2, Operating License, Appendix B, with the issuance of License Amendment No. 196 on November 5, 2002. Therefore, this letter includes a proposed Operating License change to delete the specified Additional Condition from Appendix B of the Operating License.

Revised Meteorological/Dose Analyses

In the letter dated August 14, 2002, HBRSEP, Unit No. 2, described the changes made to correct the meteorological data set input into the ARCON96 code. This change in input data resulted in a very slight increase in some of the calculated X/Q values for the control room and TSC/EOF. (Note: the offsite X/Q values were calculated using the PAVAN code and there were no changes required to the input data sets for those analyses.)

This change in the meteorological data set is applicable to the calculation of control room X/Q values used in the accidents that were analyzed to support the full AST implementation submittal of May 10, 2002. Therefore, the accident analyses for these accidents had to be recalculated. The following table provides the revised X/Q values from those previously provided:

Table 1
Onsite Atmospheric Dispersion Factors (X/Q)
(Note: These factors are not corrected for occupancy)
Previous value on top/New value below - BOLD

Release-Receptor Combination	Control Room or TSC/EOF X/Q (sec/m^3)				
	0-2 hours	**2-8 hours**	**8-24 hours**	**1-4 days**	**4-30 days**
Plant Stack-Control Room	1.23E-03	8.93E-04	3.60E-04	2.58E-04	2.19E-04
	1.24E-03	**8.97E-04**	**3.62E-04**	**2.58E-04**	**2.14E-04**
Closest Main Steam Safety/Relief Valve-Control Room	2.59E-03	1.61E-03	7.11E-04	4.95E-04	4.04E-04
	2.60E-03	**1.65E-03**	**7.22E-04**	**4.97E-04**	**4.01E-04**
Closest Main Steam Line-Control Room	2.45E-03	1.54E-03	6.97E-04	4.72E-04	3.96E-04
	2.48E-03	**1.57E-03**	**7.05E-04**	**4.74E-04**	**3.93E-04**
Containment Nearest Point-Control Room	4.11E-03	2.68E-03	1.16E-03	8.14E-04	6.76E-04
	4.15E-03	**2.74E-03**	**1.17E-03**	**8.18E-04**	**6.74E-04**
Containment Nearest Point-TSC/EOF	1.64E-04	1.42E-04	6.50E-05	4.60E-05	3.52E-05
	1.64E-04	**1.43E-04**	**6.49E-05**	**4.41E-05**	**3.50E-05**
Residual Heat Removal Heat Exchanger Room-Control Room	7.12E-03	5.34E-03	2.26E-03	1.68E-03	1.36E-03
	7.13E-03	**5.49E-03**	**2.29E-03**	**1.71E-03**	**1.37E-03**
Residual Heat Removal Heat Exchanger Room-TSC/EOF	1.38E-04	1.22E-04	5.54E-05	4.01E-05	3.02E-05
	1.38E-04	**1.23E-04**	**5.52E-05**	**3.78E-05**	**3.01E-05**
Fuel Handling Building Wall-Control Room	1.33E-03	9.96E-04	4.25E-04	3.17E-04	2.56E-04
	1.34E-03	**1.02E-03**	**4.31E-04**	**3.21E-04**	**2.56E-04**

These revised X/Q values were incorporated into the dose analyses for the various accidents. The following table provides the revised results:

Table 2
AST Dose Analysis Results

Accident	Location	Previous Dose (TEDE – Rem)	Revised Dose (TEDE – Rem)
MSLB – Pre-Accident Spike	Control Room	0.14	0.14
MSLB – Accident Induced Spike	Control Room	0.45	0.45
MSLB – Fuel Failures	Control Room	1.59	1.61
RCP Locked Rotor	Control Room	0.847	0.856
RCCA Withdrawal	Control Room	0.745	0.753
SGTR – Pre-Accident Spike	Control Room	4.48	4.49
SGTR – Accident Induced Spike	Control Room	0.36	0.37
LOCA	Control Room	4.85	4.92
LOCA	TSC/EOF	1.98	1.98
WGDTR	Control Room	0.00339	0.00328

The changes resulted in very slight increases in some of the dose results. The resultant doses remain within the 5 rem total effective dose equivalent (TEDE) acceptance criterion provided within 10 CFR 50, Appendix A, General Design Criterion 19. Therefore, the conclusions and basis for the No Significant Hazards Consideration and Environmental Impact Consideration from the May 10, 2002, submittal remain valid.

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

RESPONSES TO NRC REQUESTS FOR ADDITIONAL INFORMATION

NRC Question 12 from June 26, 2002

"The definition of dose equivalent I-131 should be defined using the effective dose conversion factor for I-131 inhalation taken from Table 2.1, Federal Guidance Report 11, and not the thyroid dose conversion factor taken from NUREG/CR-6604. Please explain."

Response

The following was the response in the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, July 25, 2002, letter:

"The proposed definition will be revised in accordance with the reviewer comment in a supplement to the proposed license amendment request for full implementation of the alternate radiological source term (CP&L letter dated May 10, 2002)."

This supplement provides the revised definition in the proposed Technical Specifications page.

NRC Question 13 from June 26, 2002

"The appropriate dose limits for the release of the contents of the waste gas decay tank are the radiation dose limits for individual members of the public. When using total effective dose equivalent (TEDE) criteria, this is 0.1 rem TEDE and not 0.5 rem TEDE as proposed by the licensee. As a side note to this particular aspect, the calculation of the maximum allowable curie content of dose equivalent Xe133 in a waste gas decay tank should be based upon the Xe133 effective dose conversion factor for air submersion taken from Federal Guidance Report 12."

Response

HBRSEP, Unit No. 2, proposes that 0.5 rem TEDE is the appropriate criterion based on the following considerations:

- NRC Safety Evaluation Reports for other licensee Alternative Source Term (AST) submittals specified 0.5 rem TEDE as the acceptance criterion for this accident. Specifically, refer to the Crystal River (Docket Number 50-302) license amendment dated September 17, 2001, and the Fort Calhoun (Docket Number 50-285) license amendment dated December 5, 2001.

- The HBRSEP, Unit No. 2, current licensing basis for Waste Gas Decay Tank (WGDT) inventory, and the maximum allowable dose consequence of that inventory, is described in the Technical Requirements Manual Specification (TRMS) TRMS 3.21 and TRM Bases B 3.21, i.e., the limit on WGDT inventory is to provide assurance that the "total body exposure to a member of the public will not exceed 0.5 rem." This basis is identified as consistent with the Branch Technical Position ETSB 11-5 in NUREG-0800, July 1981. This same criteria is also specified in Section 5.5.12 of the existing HBRSEP, Unit No. 2, Technical Specifications, which requires "A surveillance program to ensure that the quantity of radioactivity contained in each Waste Gas Decay Tank is less than the amount that would result in a whole body exposure of $\geq$ 0.5 rem to any individual in an unrestricted area, in the event of an uncontrolled release of the tank's contents." This current licensing basis was most recently reviewed and approved by the NRC during the implementation of the Improved Standard Technical Specifications at HBRSEP, Unit No. 2, which was after the issuance of the revised 10 CFR 20 that lowered the public dose limit from normal operation to 0.1 rem.
- The WGDT Rupture accident only evaluates the dose from noble gas submersion, which results in only an external dose. There is no internal Committed Effective Dose Equivalent (CEDE) contribution. Therefore, the TEDE dose would be equivalent to the total body dose or Deep Dose Equivalent (DDE) received from the noble gas plume. Hence, the 0.5 rem total/whole body dose from the TRM Basis and Technical Specifications can be considered equivalent to a TEDE dose criterion.
- The limits in 10 CFR 20, i.e., the source of the 0.1 rem criterion, apply to normal operational limits and are not intended to provide acceptance criteria for accidents. Even if the WGDT contents were limited to a value that ensured a dose less than 0.1 rem, it would not ensure compliance with 10 CFR 20, as the limit of 0.002 rem in any one hour [10 CFR 20.1301(a)(2)] would likely be exceeded.
- The current NRC Standard Review Plan and the guidelines for implementation of the AST (Regulatory Guide 1.183) provide no guidance or criteria for the WGDT Rupture accident. Therefore, the most recent guidance, as provided in the Branch Technical Position ETSB 11-5, could be used as a guideline for determining an appropriate TEDE limit. For accident criteria that are addressed by Regulatory Guide 1.183, the previous whole body dose limit essentially became the TEDE dose limit (e.g., the Exclusion Area Boundary and Low Population Zone dose limit for a LOCA is 25 rem whole body and 300 rem thyroid in 10 CFR 100, and is now 25 rem TEDE if the AST is applied). Therefore, the 0.5 rem whole body dose limit from Branch Technical Position ETSB 11-5 for the WGDT Rupture accident would correspond to a 0.5 rem TEDE acceptance criteria.

Additionally, HBRSEP, Unit No. 2, has confirmed that by use of the RADTRAD code, the dose conversion factors for external dose from noble gas submersion were based on Federal Guidance Report 12 for the WGDT Rupture accident analysis.

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

MARKUP OF TECHNICAL SPECIFICATIONS AND OPERATING LICENSE PAGES

1.1 Definitions (continued)

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same ~~thyroid~~ dose as the quantity ~~and isotopic mixture~~ of I-131, I-132, I-133, I-134, and I-135 actually present. The ~~thyroid~~ dose conversion factors used for this calculation shall be those listed in ~~Regulatory Guide 1.109, Rev. 1, NRC, 1977~~. FEDERAL GUIDANCE REPORT 11, "LIMITING VALUES OF RADIONUCLIDE INTAKE AND AIR CONCENTRATION AND DOSE CONVERSION FACTORS FOR INHALATION, SUBMERSION AND INGESTION," 1989
$\bar{E}$ - AVERAGE DISINTEGRATION ENERGY	$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than

(continued)

APPENDIX B

ADDITIONAL CONDITIONS
FACILITY OPERATING LICENSE NO. DPR-23

Carolina Power & Light Company (the term licensee in Appendix B refers to Carolina Power & Light Company) shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
176	The licensee is authorized to relocate certain requirements included in Appendix A and the former Appendix B to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's letters dated September 10, 1997, and October 13, 1997, evaluated in the NRC staff's Safety Evaluation enclosed with this amendment.	This amendment is effective immediately and shall be implemented within 90 days of the date of this amendment.
~~196~~	~~Operation of H. B. Robinson Steam Electric Plant, Unit No. 2, is limited to 504 effective full-power days. This additional condition shall remain in effect until approval of a license amendment that removes this limitation.~~	~~This amendment is effective immediately and shall be implemented within 30 days of the date of this amendment.~~

United States Nuclear Regulatory Commission
Attachment V to Serial: RNP-RA/03-0016
3 pages

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

RETYPED TECHNICAL SPECIFICATIONS
AND OPERATING LICENSE PAGES

1.1 Definitions (continued)

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL OPERATIONAL TEST (COT)	A COT shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify the OPERABILITY of required alarm, interlock, display, and trip functions. The COT shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints so that the setpoints are within the required range and accuracy.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit specific document that provides cycle specific parameter limits for the current reload cycle. These cycle specific parameter limits shall be determined for each reload cycle in accordance with Specification 5.6.5. Plant operation within these limits is addressed in individual Specifications.
DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same dose as the quantity of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1989.
$\bar{E}$-AVERAGE DISINTEGRATION ENERGY	$\bar{E}$ shall be the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes, other than

(continued)

APPENDIX B

ADDITIONAL CONDITIONS
FACILITY OPERATING LICENSE NO. DPR-23

Carolina Power & Light Company (the term licensee in Appendix B refers to Carolina Power & Light Company) shall comply with the following conditions on the schedules noted below:

Amendment Number	Additional Conditions	Implementation Date
176	The licensee is authorized to relocate certain requirements included in Appendix A and the former Appendix B to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's letters dated September 10, 1997, and October 13, 1997, evaluated in the NRC staff's Safety Evaluation enclosed with this amendment.	This amendment is effective immediately and shall be implemented within 90 days of the date of this amendment.

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

REVISED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION AND ENVIRONMENTAL IMPACT CONSIDERATION

The following provides a revised No Significant Hazards Consideration Determination and Environmental Impact Consideration. The only differences from the determination submitted in the May 10, 2002, letter is in the definition of Dose Equivalent I-131 in the description of the proposed Technical Specifications changes and the deletion of the operating cycle length restriction from Appendix B, Additional Conditions, of the Operating License. These changes do not impact the basis or conclusions of the original determinations.

NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Progress Energy Carolinas, Inc., also known as Carolina Power and Light Company, is proposing changes to Appendix A, Technical Specifications (TS), and Appendix B, Additional Conditions, of Facility Operating License No. DPR-23, for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. These changes revise the licensing basis for HBRSEP, Unit No. 2, to implement the Alternative Source Term (AST) described in Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." Implementation of the AST will allow for removal of the cycle operating length restriction from Appendix B, Additional Conditions, of the Operating License, as the AST radiological consequence analyses support operation for an entire cycle at the increased power level approved in License Amendment No. 196. The AST was used in evaluating the radiological consequences of the following Updated Final Safety Analysis Report (UFSAR) Chapter 15 accidents:

- Main Steam Line Break,
- Reactor Coolant Pump Shaft Seizure (Locked Rotor),
- Single Rod Control Cluster Assembly (RCCA) Withdrawal,
- Steam Generator Tube Rupture (SGTR),
- Large Break Loss-of-Coolant Accident (LBLOCA), and
- Waste Gas Decay Tank (WGDT) Rupture

In addition, revised atmospheric dispersion factors for onsite and offsite dose consequences have been calculated and incorporated in the reanalysis of these events. As part of the full implementation of the AST, the total effective dose equivalent (TEDE) acceptance criterion of

10 CFR 50.67(b)(2) replaces the previous whole body and thyroid dose guidelines of 10 CFR 100.11. A request for a selective implementation of an AST in the HBRSEP, Unit No. 2, Fuel Handling Accident analysis was previously submitted by letter dated March 13, 2002, and approved by NRC letter dated October 4, 2002.

The full implementation of the AST is supported by the following TS changes:

The definition of Dose Equivalent I-131 in Section 1.1 is revised to reference Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1988, as the source of thyroid dose conversion factors.

The Reactor Coolant System (RCS) operational leakage limits, stated in Limiting Condition for Operation (LCO) 3.4.13, for total primary-to-secondary leakage through all steam generators, is reduced from 1 gpm to 0.3 gpm. In addition, the limit specified for primary-to-secondary leakage through any one steam generator is reduced from 500 gallons per day to 150 gallons per day.

The Dose Equivalent I-131 requirements of TS 3.4.16, "RCS Specific Activity," are reduced from 1.0 μCi/gm to 0.25 μCi/gm in Condition A and in Surveillance Requirement (SR) 3.4.16.2. In addition, Figure 3.4.16-1, "Reactor Coolant Dose Equivalent I-131 Specific Activity Limit Versus Percent of Rated Thermal Power," is deleted. Required Action A.1 is revised to replace the reference to the acceptable region of Figure 3.4.16-1 with a limit of ≤ 60.0 μCi/gm. The second entry condition of Condition C is revised to replace the reference to the unacceptable region of Figure 3.4.16-1 with reference to > 60 μCi/gm.

The description of the Explosive Gas and Storage Tank Radioactivity Monitoring Program provided in TS 5.5.12 is revised to incorporate the TEDE as the acceptance criteria for dose consequences.

An evaluation of the proposed change has been performed in accordance with 10 CFR 50.91(a)(1) regarding no significant hazards considerations using the standards in 10 CFR 50.92(c). A discussion of these standards as they relate to this amendment request follows:

1. The Proposed Change Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.

   Implementation of the Alternative Source Term does not affect the design or operation of HBRSEP, Unit No. 2. Rather, once the occurrence of an accident has been postulated, the new source term is an input to evaluate the consequences of the postulated accident. The implementation of the Alternative Source Term has been evaluated in revisions to limiting design basis accidents at HBRSEP, Unit No. 2. Based on the results of these analyses, it has been demonstrated that, with the requested changes to the Technical

Specifications, the dose consequences of these limiting events are within the regulatory guidance provided by the NRC. This guidance is presented in 10 CFR 50.67 and Regulatory Guide 1.183. The proposed Technical Specifications changes result in more restrictive requirements and support the revisions to the limiting design basis accident analyses.

Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The Proposed Change Does Not Create the Possibility of a New or Different Kind of Accident From Any Previously Evaluated.

The proposed changes do not affect plant structures, systems or components. The Alternative Source Term and those plant systems affected by implementing the proposed changes do not initiate design basis accidents.

Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The Proposed Change Does Not Involve a Significant Reduction in the Margin of Safety.

The proposed changes are associated with the implementation of a new licensing basis for HBRSEP, Unit No. 2. The new licensing basis implements an Alternative Source Term in accordance with 10 CFR 50.67 and the associated Regulatory Guide 1.183. The results of the revised limiting design basis analyses are subject to revised acceptance criteria. The analyses have been performed using conservative methodologies in accordance with the regulatory guidance. The dose consequences of the limiting design basis events are within the acceptance criteria found in the regulatory guidance associated with Alternative Source Terms.

The proposed changes continue to ensure that doses at the exclusion area and low population zone boundaries, as well as the control room, are within the corresponding regulatory limits. Specifically, the margin of safety for the radiological consequences of these accidents is considered to be that provided by meeting the applicable regulatory limits, which are conservatively set below the 10 CFR 50.67 limits. With respect to control room personnel doses, the margin of safety (the difference between the 10 CFR 50.67 limits and the regulatory limits defined by 10 CFR 50, Appendix A, Criterion 19 (GDC-19)) continues to be satisfied.

Therefore, this change does not involve a significant reduction in a margin of safety.

Based on the above discussion, Progress Energy Carolinas, Inc., also known as Carolina Power and Light Company, has determined that the requested change does not involve a significant hazards consideration.

ENVIRONMENTAL IMPACT CONSIDERATION

10 CFR 51.22(c)(9) provides criteria for identification of licensing and regulatory actions for categorical exclusion for performing an environmental assessment. A proposed change for an operating license for a facility does not require an environmental assessment if operation of the facility in accordance with the proposed change would not (1) involve a significant hazards consideration; (2) result in a significant change in the types or significant increases in the amounts of any effluents that may be released offsite; (3) result in an increase in individual or cumulative occupational radiation exposure. Progress Energy Carolinas, Inc. has reviewed this request and determined that the proposed change 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 is required in connection with the issuance of the amendment. The basis for this determination follows:

Progress Energy Carolinas, Inc., is proposing changes to Appendix A, Technical Specifications (TS), and Appendix B, Additional Conditions, of Facility Operating License No. DPR-23, for H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2. These changes revise the licensing basis for HBRSEP, Unit No. 2, to implement the Alternative Source Term (AST) described in Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." Implementation of the AST will allow for removal of the cycle operating length restriction from Appendix B, Additional Conditions, of the Operating License, as the AST radiological consequence analyses support operation for an entire cycle at the increased power level approved in License Amendment No. 196. The AST was used in evaluating the radiological consequences of the following Updated Final Safety Analysis Report (UFSAR) Chapter 15 accidents:

- Main Steam Line Break,
- Reactor Coolant Pump Shaft Seizure (Locked Rotor),
- Single Rod Control Cluster Assembly (RCCA) Withdrawal,
- Steam Generator Tube Rupture (SGTR),
- Large Break Loss-of-Coolant Accident (LBLOCA), and
- Waste Gas Decay Tank (WGDT) Rupture

In addition, revised atmospheric dispersion factors for onsite and offsite dose consequences have been calculated and incorporated in the reanalysis of these events. As part of the full implementation of the AST, the total effective dose equivalent (TEDE) acceptance criterion of 10 CFR 50.67(b)(2) replaces the previous whole body and thyroid dose guidelines of 10 CFR 100.11.

The full implementation of the AST is supported by the following TS changes:

The definition of Dose Equivalent I-131 in Section 1.1 is revised to reference Federal Guidance Report 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," 1988, as the source of thyroid dose conversion factors.

The Reactor Coolant System (RCS) operational leakage limits, stated in Limiting Condition for Operation (LCO) 3.4.13, for total primary-to-secondary leakage through all steam generators, is reduced from 1 gpm to 0.3 gpm. In addition, the limit specified for primary-to-secondary leakage through any one steam generator is reduced from 500 gallons per day to 150 gallons per day.

The Dose Equivalent I-131 requirements of TS 3.4.16, "RCS Specific Activity," are reduced from 1.0 μCi/gm to 0.25 μCi/gm in Condition A and in Surveillance Requirement (SR) 3.4.16.2. In addition, Figure 3.4.16-1, "Reactor Coolant Dose Equivalent I-131 Specific Activity Limit Versus Percent of Rated Thermal Power," is deleted. Required Action A.1 is revised to replace the reference to the acceptable region of Figure 3.4.16-1 with a limit of ≤ 60.0 μCi/gm. The second entry condition of Condition C is revised to replace the reference to the unacceptable region of Figure 3.4.16-1 with reference to > 60 μCi/gm.

The description of the Explosive Gas and Storage Tank Radioactivity Monitoring Program provided in TS 5.5.12 is revised to incorporate the TEDE as the acceptance criteria for dose consequences.

Basis

The proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in the No Significant Hazards Consideration Determination, the proposed change does not involve a significant hazards consideration.

2. As demonstrated in the No Significant Hazards Consideration Determination, the proposed change does not result in a significant increase in the consequences of an accident previously evaluated and does not result in the possibility of a new or different kind of accident. Therefore, the proposed change does not result in a significant change in the types or significant increases in the amounts of any effluents that may be released offsite.

3. The Alternative Source Term does not affect the design or operation of the facility. Rather, once the occurrence of an accident has been postulated, the Alternative Source Term is an input to evaluate the consequences. The implementation of the Alternative Source Term has been evaluated in revisions to the analyses of the limiting design basis accidents at HBRSEP, Unit No. 2. Based on the results of these analyses, it has been demonstrated that, with the requested Technical Specifications changes, the dose consequences of the limiting event are within the regulatory guidance provided by the NRC for use with the Alternative Source Term. Therefore, the proposed change does not result in a significant increase in either individual or cumulative occupational radiation exposures.