July 29, 1998

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: ISSUANCE OF AMENDMENT NO. 179 TO FACILITY OPERATING LICENSE NO. DPR-23 REGARDING H. B. ROBINSON STEAM ELECTRIC PLANT UNIT 2 - FOLLOW UP EXIGENT AMENDMENT TO PERMIT AN 8 HOUR AOT FOR THE ULTIMATE HEAT SINK (UHS) TEMPERATURE (TAC NO. MA2180)

Dear Mr. Young:

The Commission has issued the enclosed Amendment No. 179 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR). This amendment consists of changes to the Technical Specifications (TS) in response to your application dated June 26, 1998, as supplemented by your request dated July 22, 1998. Issuance of this amendment supersedes Notice of Enforcement Discretion 98-6-010, which was granted orally on June 27, 1998, and confirmed in writing on July 1, 1998.

This amendment revises TS 3.7.8, "Ultimate Heat Sink (UHS)," to permit an 8-hour delay in the UHS temperature restoration period prior to entering the plant shutdown required actions. Also, for the duration of the restoration, service water system (SWS) temperature will be monitored every hour after exceeding 95 degrees F and if restoration does not occur within 8 hours, the plant would be placed in MODE 3 within 6 hours in accordance with the TS. This TS amendment is given as a one-time amendment change effective until September 30, 1998, after which the TS will revert back to the original TS provisions. A copy of the Safety Evaluation is also enclosed.

You are requested to inform the staff in writing when you have implemented the provisions of this amendment.

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

Sincerely,
Original signed by:
Ram Subbaratnam, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosures:
1. Amendment No. 179 to License No. DPR-23
2. Safety Evaluation

cc w/encls: See next page *See previous concurrence

FILENAME - G:\ROBINSON\ROEX2180.AMD

PM:PDII-1	LA:PDII-1	SPLB	OGC	APD:PDII-1
RSubbaratnam	EDunnington	GHubbard*	KBrachmann	PTKuo
7/24/98	7/24/98	7/23/98	7/29/98	7/29/98
Yes/No	Yes/No	Yes/No	Yes/No	Yes/No

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AMENDMENT NO. 179 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. 179
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 (the licensee), dated June 26, 1998, as supplemented on July 22, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. DPR-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. 179, are hereby incorporated in the license. Carolina Power & Light Company shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

P.T. Kuo, Acting Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 29, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 179

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove Pages	Insert Pages
3.7-21	3.7-21
-	3.7-21a
B 3.7-50	B 3.7-50
-	B 3.7-50a
B 3.7-51	B 3.7-51

3.7 PLANT SYSTEMS

3.7.8 Ultimate Heat Sink (UHS)

LCO 3.7.8 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

----------NOTES----------

1. Conditions A and B and associated Required Actions and Completion Times shall only be applicable prior to, and on September 30, 1998.

2. Condition C and associated Required Actions and Completion Times shall only be applicable after September 30, 1998.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Service water temperature > 95°F.	A.1 Restore service water temperature to ≤ 95°F. AND A.2 Verify service water temperature is ≤ 99°F.	8 hours 1 hour AND Once per hour thereafter

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and Completion Time of Condition A not met. OR UHS inoperable for reasons other than Condition A.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours
C. UHS inoperable.	C.1 Be in MODE 3. AND C.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	Verify water level of UHS is ≥ 218 ft mean sea level.	24 hours
SR 3.7.8.2	Verify service water temperature is ≤ 95°F.	24 hours

BASES

APPLICABLE SAFETY ANALYSES (continued)

The UHS satisfies Criterion 3 of the NRC Policy Statement.

LCO

The UHS is required to be OPERABLE and is considered OPERABLE if it contains a sufficient volume of water at or below the maximum temperature that would allow the SWS to operate for at least 22 days following the design basis LOCA without the loss of NPSH, and without exceeding the maximum design temperature of the equipment served by the SWS. To meet this condition, the UHS temperature should not exceed 95°F and the level should not fall below 218 ft MSL during normal unit operation.

APPLICABILITY

In MODES 1, 2, 3, and 4, the UHS is required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES.

In MODE 5 or 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.

ACTIONS

Notes 1 and 2 have been added in the ACTIONS to provide a clear expiration date for Conditions A and B and associated Required Actions and Completion Times, and a date that Condition C and its associated Required Actions and Completion Times will become applicable. Prior to midnight October 1, 1998, if the LCO is not met, refer to Conditions A or B and associated Required Actions and Completion Times. On midnight October 1, 1998, and thereafter, refer only to Condition C if the LCO is not met.

A.1

When service water temperature is greater than 95°F, it must be restored to ≤ 95°F within 8 hours. This Required Action is necessary to return operation to within the design basis of the Service Water System. The 8 hour Completion Time is acceptable considering the low probability of a Design Basis

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

Accident occurring during this period and allows a reasonable time for diurnal effects to act upon the UHS.

The service water temperature must be monitored more frequently to ensure service water temperatures stay at or below 99°F so that no loss of function occurs for equipment cooled by the UHS. The Completion Time of 1 hour is reasonable considering the limited time that Required Action A.1 allows the service water temperature limit to be exceeded in conjunction with the generally slow rate of temperature increase experienced from thermal changes in Lake Robinson.

B.1 and B.2

If Required Actions A.1 and A.2 and Completion Times are not met or the UHS is inoperable for reasons other than Condition A, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

C.1, and C.2

If the UHS is inoperable, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.7.8.1

This SR verifies that adequate long term (22 day) cooling can be maintained. The specified level also ensures that sufficient NPSH is abailable to operate the SWS pumps. The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES. This SR verifies that the UHS water level is ≥ 218 ft MSL.

SR 3.7.8.2

This SR verifies that the SWS is available to cool the CCW System to at least its maximum design temperature with the maximum accident or normal design heat loads for 30 days following a Design Basis Accident. The 24 hour Frequency is based on operating experience related to trending of the parameter variations during the applicable MODES. This SR verifies that the service water temperature is ≤ 95°F.

REFERENCES

1. UFSAR, Section 9.2.4.

2. UFSAR Section 2.4.6.1.

3. UFSAR Section 2.1.1.2.

4. NUREG-75/024, "Final Environmental Statement Related to the Operation of H. B. Robinson Nuclear Steam-Electric Plant Unit 2," U. S. Nuclear Regulatory Commission, Washington DC 20555, April 1975, page 3-7.

5. USGS Historical Daily Values for Station Number 02130900, Black Creek Near McBee, South Carolina, Years 1960-1993.

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

SAFETY EVALUATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ULTIMATE HEAT SINK TECHNICAL SPECIFICATION

H. B. ROBINSON, UNIT 2

DOCKET NO. 50-261

1.0 INTRODUCTION

By letter dated June 26, 1998, as supplemented by letter dated July 22, 1998, Carolina Power & Light Company (CP&L or the licensee) requested a change to the Technical Specifications (TS) for the H. B. Robinson Steam Electric Plant, Unit 2, in accordance with 10 CFR 50.90. Specifically, the licensee proposed to revise TS 3.7.8, "Ultimate Heat Sink (UHS)" to provide a new Required Action and Completion Time for the UHS in the event that service water temperature exceeds the design limit of 95 degrees Fahrenheit (°F). The proposed new Action would require restoring the service water temperature to within the design limit with a Completion Time of 8 hours. Although the licensee has proposed this revision as a permanent change to TS 3.7.8, the staff has concluded that the licensee has not provided sufficient technical justification for a permanent TS change at this time. However, the staff further concludes that there is adequate technical justification to accept the proposed changes to TS 3.7.8 on a one-time temporary basis, through September 30, 1998.

The UHS provides a heat sink for removing heat from plant equipment during a transient or accident, as well as during normal operation. This is accomplished by using the service water system (SWS) and the component cooling water (CCW) system.

The UHS at Robinson is defined as the Lake Robinson Impoundment, including necessary retaining structures, and the canals or conduits connecting the sources with, but not including, the cooling water intake structures. The UHS temperature is a function of insolation, operation of H. B. Robinson, Units 1 (fossil) and 2 (nuclear), hydrology of the Lake Robinson watershed, and meteorological conditions which affect the efficiency of evaporative cooling, natural convection, and diurnal radiant heat losses. During the summer, the average heat input due to insolation is comparable to the total heat input from both Robinson Units 1 and 2. Condensing cooling water and service water discharged from the plant is returned to greater Lake Robinson via a 4.2 mile long discharge canal which terminates in the lake near its upper end (SWS intake is at the lower end of the lake). During full power operation, the normal transient time of water through the discharge canal is approximately 3.5 hours. Hence, the effect of a plant shutdown in the event that the SWS temperature limit is exceeded will not immediately be effective on the temperature of the service water entering the plant. However, in the summer months during periods of hot weather, a diurnal effect of alternating insolation of the lake water during the day and increased radiant and evaporative heat loss during the night results in a variation of lake water temperature around a 24-hour cycle. During recently experienced extreme hot weather conditions, the high point of this temperature limit has threatened to reach or exceed the TS limit.

The current TS 3.7.8 specifies the following Actions and Completion Time for the UHS inoperable for any reason, including SWS temperature >95°F:

A.1 Be in Mode 3 within 6 hours, AND

A.2 Be in Mode 5 within 36 hours.

The licensee proposed to retain the requirements of A.1 and A.2 as B.1 and B.2 for the new specified Condition B which would be applicable if the Required Actions and Completion Times of Condition A are not met OR the UHS is inoperable for reasons other than Condition A (for example, low water level). The new Condition A would specify the following Actions and Completion Times with service water temperature >95°F:

A.1 Restore service water temperature to ≤95°F within 8 hours, AND

A.2 Verify service water temperature is ≤99°F every 1 hour.

Therefore, if the service water temperature was not restored to within limits within 8 hours, the UHS would essentially be considered inoperable and B.1 and B.2 would apply (same Actions and Completion Times as current TS).

Additionally, a NOTE has been added to the Actions section which states that Conditions A and B shall not apply after September 30, 1998, at which time new Condition C will apply. The new Condition C is identical to the current Condition A and its Action Statements and is necessary to provide an allowed outage time when Conditions A and B are no longer applicable. Thus, new Condition C specifies that, with the UHS inoperable for any reason, the following Actions and Completion Times apply:

C.1 Be in Mode 3 within 6 hours, AND

C.2 Be in Mode 5 within 36 hours.

2.0 EVALUATION

In support of the proposed change, the licensee has evaluated the effects of exceeding the service water temperature limit. The SWS temperature is an input to the containment analysis contained in Final Safety Analysis Report (FSAR) Section 6.2. The SWS temperature is also a design assumption for the spent fuel pool cooling system (SFPCS), auxiliary feedwater (AFW) system, CCW system and its loads, the emergency diesel generators (EDGs), containment air recirculation cooling (CARC) system, room coolers for certain safety-related areas, and non-safety-related systems. Where components rely upon SWS temperature to maintain the components within operating temperature limits, the licensee's evaluation determined that the components could withstand service water temperatures up to 99°F. The limiting aspect of the evaluation was operation of the steam turbine-driven AFW (TDAFW) pump in the self-cooling mode with a water source in excess of 99°F. This results in bearing temperatures in excess of the manufacturer's recommended limits.

The containment analyses use the SWS temperature of 95°F as a limiting input parameter. Therefore, it is appropriate to limit the amount of time that SWS temperature may be above the 95°F limit. Since the probability that a design basis accident (DBA) would occur during this time period is low, and the expected temperature increase above the limit is small, the proposed change is of low safety significance. To assure that the safety significance remains low, the licensee, in its July 22, 1998 submittal, revised the proposed change to include an upper limit of 99°F to further ensure that component temperature limits will not be exceeded following a design basis accident.

In support of a permanent change for an 8-hour allowed outage time (AOT) for the UHS, the licensee cited other "similar" AOTs for the refueling water storage tank (RWST) and containment air temperature. The staff does not believe that enough similarity exists between the conditions and required actions for exceeding the UHS temperature and those for exceeding the limits for the RWST and containment air temperature. For the RWST and containment air temperature, there are definitive operator actions that can be taken to restore the exceeded parameter to within limits, and once restored, that limit is not expected to be exceeded in the foreseeable future due to an uncontrollable cyclic phenomenon. Since exceeding the UHS temperature limit is generally caused by meteorological effects which are cyclic in nature on a daily basis, the licensee has no definitive action to take to restore the temperature to within limits, and it is not unexpected that the temperature limit could be exceeded on a daily basis for some undefined period of time. The staff, therefore, does not believe that similarities among these specification limits warrant a permanent change to the UHS Actions or Completion Times. For a permanent change to the AOT for the UHS under conditions of exceeding the current temperature limit, a revised plant-specific containment analysis should be performed and submitted along with a proposed new limit. Otherwise, a generic change to the Standard Technical Specifications may be proposed and justified through the owners' groups.

However, the staff concludes that the 8-hour Completion Time of Action A.1 for being slightly above the design basis temperature is acceptable on a temporary basis because the cooled equipment has been analyzed and found to remain within the manufacturer's limits in the event of an accident and the probability of a design basis accident occurring during the 8-hour period is small. The proposed Actions and Completion Times for new Conditions B and C are also acceptable because they are essentially identical to the current TS 3.7.8 requirements for the UHS.

The staff also concludes that the proposed modifying Note is acceptable because it is necessary to reflect the temporary aspects of the proposed TS change.

3.0 STATEMENT OF EXIGENT CIRCUMSTANCES

In its submittal, the licensee requested that the NRC review and approve the proposed change as an exigent amendment.

The Commission's regulation as stated in 10 CFR 50.91 provides special exceptions for the issuance of amendments when the usual 30-day public notice cannot be met. The TS change is issued as a follow-up amendment to the NOED 98-06-10 which was granted on July 1, 1998. The public notification used was a shortened individual Federal Register notice (63 FR 36967)

with a comment period of 2 weeks and maintaining the normal 30-day period to request the hearing. The Lake Robinson has experienced unusually warm and dry weather conditions during the month of June 1998 which resulted in the service water temperature approaching the 95 degrees F limit and this situation could not have been foreseen sufficiently in advance to avoid an exigent action on the proposed change. As the service water temperatures approach the required limit of 95 degrees F, the potential exists for repetitive entry into a shutdown transient as diurnal Lake Robinson temperature variations occur. The exigent circumstance arise from the need to avoid transients associated with plant derating or shutdown until the long term resolution of this condition is implemented. In view of the unusually hot and dry weather conditions that Robinson Lake is facing and the fact that the TS amendment is being given as a one-time amendment effective until September 30, 1998, the staff has reviewed the licensee's proposed amendment and finds that (1) exigent circumstances exist, as provided for in 10 CFR 50.91(a)(6), in that the licensee and the Commission must act quickly and that time does not permit the Commission to publish a Federal Register notice allowing 30 days for prior public comment, and (2) the licensee has not failed to use its best efforts to make a timely application and avoid creating the exigent circumstance. The NRC has also determined that the amendment request involved no significant hazards consideration, and that appropriate conditions exist which resulted in the need for the exigent request.

4.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has provided standards for determining whether a significant hazards consideration exists (10 CFR 50.92(c)). A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The licensee has analyzed the proposed amendment to determine if a significant hazard consideration exists:

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The proposed change does not involve any physical alteration of plant systems, structures or components. The proposed change provides an allowed time for the plant condition resulting from service water temperature in excess of the design limit of 95°F. The Service Water System (SWS) temperature is not assumed to be an initiating condition of any accident analysis evaluated in the safety analysis report. Therefore, the allowance of a limited time for service water temperature to be in excess of the design limit does not involve an increase in the probability of an accident previously evaluated in the safety analysis report (SAR). The SWS supports operability of safety related systems used to mitigate the consequences of an accident. An increase in service water temperature in excess of the design limit is expected to be small due to the limited time allowed by the proposed change in conjunction with the generally slow rate of temperature increase experienced from thermal changes in Lake

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

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not involve any physical alteration of plant systems, structures or components. The temperature of the service water when near or slightly above the service water design temperature does not introduce new failure mechanisms for systems, structures or components not already considered in the SAR. Therefore, the possibility of a new or different kind of accident from any accident previously evaluated is not created.

3. Does this change involve a significant reduction in a margin of safety?

   The proposed change will allow a small increase in service water temperature above the design basis limit for the service water system and delay the requirement to shutdown the plant when the service water system design limit is exceeded by 8 hours. There are design margins associated with systems, structures and components that are cooled by the service water system that are affected. The service water system temperature is an input assumption for mitigating the effects of design basis accidents. However, an increase in service water temperature in excess of design limit is expected to be small due to the limited time allowed by the proposed change in conjunction with the slow rate of temperature increase experienced from thermal changes in Lake Robinson. Therefore, there is no significant reduction in margin of safety associated with this change.

Based on the above considerations, the staff concludes that the amendment meets the standards set forth in 10 CFR 50.92 for a no significant hazards determination. Therefore, the staff has made a final determination that the proposed amendment involves no significant hazards consideration.

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

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 made a final no significant hazards consideration determination. 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.

7.0 CONCLUSION

As a result of its evaluation as described above, the staff concludes that the proposed change to TS 3.7.8 provides a significant amount of additional flexibility without any significant reduction in plant safety because of its temporary nature and supporting analysis regarding the cooled equipment. The proposed change is, therefore, 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: Ram Subbaratnam
William LeFave

Date: July 29, 1998