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SUBJECT: Requests notice of enforcement discretion (NOED) re
compliance with HB Robinson Steam Electric Plant, Unit 2
FOL paragraph c, which requires that facility be operated in
conformity with application, as amended.

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Carolina Power & Light Company

Robinson Nuclear Plant
3581 West Entrance Road
Hartsville SC 29550

Serial: RNP-RA/99-0149

July 31, 1999

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

REQUEST FOR NOTICE OF ENFORCEMENT DISCRETION
TECHNICAL SPECIFICATION SECTION 3.7.8 - ULTIMATE HEAT SINK

Dear Sir or Madam:

Carolina Power & Light (CP&L) Company requests a Notice of Enforcement Discretion (NOED) regarding compliance with the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2, Facility Operating License paragraph c, which requires that the facility be operated in conformity with the application, as amended. This NOED and supporting information were discussed during a teleconference with the Nuclear Regulatory Commission (NRC) Staff on July 31, 1999.

A severe and sustained period of high temperatures is causing record energy demand in the Carolinas. As a result, System Reliability Alert Levels 1 and 2, have been invoked on a number of occasions during the period from July 21 through July 30, 1999. Reliability Alert Level 1 is implemented when projected load and reserve requirements will utilize available capacity. Reliability Alert Level 2 is implemented when projected load and reserve requirements are marginally greater than the available capacity. In addition, administrative controls have been implemented during this same period to restrict maintenance and operational activities that have a risk of adversely affecting plant reliability.

The severe and sustained period of hot weather described above, combined with the thermal and hydrological characteristics of the UHS, have resulted in a situation where the existing 8 hour Completion Time may not be of sufficient duration to allow UHS temperature to return below 95°F. Additionally, an extended period of this severely hot weather may further result in several long temperature excursions above 95°F and could result in unwarranted plant power

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reductions and shutdowns during a time of record energy demand. This NOED requests that the current 8 hour Completion Time be extended to 72 hours until an exigent TS amendment, submitted to NRC on July 30, 1999, can be approved. The proposed Completion Time will better accommodate the severe current weather patterns.

The 95°F temperature limit prescribed by Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.8 Condition A for operability of the UHS is the design basis for the Service Water (SW) system. This limit is also the acceptance criterion for a Surveillance Requirement (SR) 3.7.8.2. The current Completion Time for restoring SW temperature to within 95°F is 8 hours. Upon exceeding this Completion Time, TSs require the plant to be in MODE 3 within 6 hours, and in MODE 5 within 36 hours. The requested NOED would allow 72 hours to restore the UHS temperature to within the limits of Condition 3.7.8.A (i.e., 95°F). If restoration does not occur within 72 hours, the plant would be placed in MODE 3 within 6 hours and in MODE 5 within 36 hours.

Long term resolution of this situation has been addressed by previous submittals to include UHS Required Actions and Completion Times in the event that SW temperature exceeds the design limit, and to increase the UHS LCO temperature value from 95°F to 97°F. Specifically, on June 26, 1998, a Technical Specification change request was submitted that would establish permanent Required Actions and Completion Times in the event that SW temperature exceeds 95°F. The June 26, 1998 submittal is being reviewed by the NRC Staff in conjunction with an industry Technical Specification Task Force item. Also, on May 27, 1999, a Technical Specification change request was submitted to increase the maximum allowable UHS temperature from 95°F to 97°F. Due to the nature and complexity of this May 27, 1999 submittal, NRC approval of this proposed Amendment was requested by June 30, 2000.

HBRSEP, Unit No. 2, implemented Improved Technical Specifications (ITS) on November 13, 1997. There are no TS line item improvements associated with this NOED, and NUREG-1431, "Standard Technical Specifications - Westinghouse Plants," and approved generic changes do not currently include a Required Action or Completion Time of this type. Therefore, this NOED is not a result of failure to adopt ITS or approved line-item improvements to the TS. Note, however, that prior to the implementation of the ITS there were no UHS temperature limits in the superseded custom TS. This NOED is requested based upon plant specific considerations and is not generic in nature.

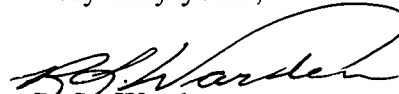
Attachment I provides information in support of the request for NOED in accordance with NRC Administrative Letter (AL) 95-05, Revision 2, "Revisions to Staff Guidance for Implementing NRC Policy on Notices of Enforcement Discretion."

This request for NOED has been reviewed and approved by the Plant Nuclear Safety Committee.

The basis for CP&L's conclusion that the noncompliance will not be a detriment to the public health and safety and a Determination of No Significant Hazards Considerations are provided within the Attachment to this letter. The basis for CP&L's conclusion that the noncompliance will not involve adverse consequences to the environment is provided in the Environmental Impact Consideration provided in the Attachment.

If you have any questions concerning this matter, please contact me or Mr. H. K. Chernoff.

Very truly yours,



R. L. Warden

Manager - Regulatory Affairs

CTB/ctb

Attachment

- c: Mr. Max K. Batavia, Chief, Bureau of Radiological Health (SC)
- Mr. L. A. Reyes, Regional Administrator, USNRC, Region II
- Mr. R. Subbaratnam, USNRC Project Manager, HBRSEP
- USNRC Resident Inspector, HBRSEP
- Attorney General (SC) (w/out Attachments)

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
REQUEST FOR ENFORCEMENT DISCRETION
TECHNICAL SPECIFICATION SECTION 3.7.8, ULTIMATE HEAT SINK

Technical Specification Section That Will Be Violated

The requested Notice of Enforcement Discretion (NOED) will result in the violation of Technical Specifications (TS) Limiting Condition for Operation (LCO) 3.7.8, Required Action A.1, which requires Service Water (SW) temperature be restored to less than or equal to 95°F within 8 hours of exceeding 95°F. This NOED and an associated exigent TS amendment request submitted on July 30, 1999, propose to allow a 72 hour Completion Time to restore SW temperature to the limit specified by TS LCO 3.7.8 Condition A Required Action A.1. The remaining limits and surveillances associated with the Ultimate Heat Sink (UHS) are unchanged.

Circumstances Requiring the Request

The current UHS temperature limit provided in TS LCO 3.7.8 Condition A is 95°F, with an associated 8 hour Completion Time for restoring temperature to less than or equal to 95°F. South Carolina has been in a period of sustained severe hot temperature. As a result of these temperatures and record system load conditions, the potential for grid instabilities resulting from the forced shutdown of a 700 MW power plant would be very high. It is of great importance to the health and safety of the public that every practicable effort be made to maintain this unit on line. Regional power demand remains extremely high and therefore, regional reserves are not available to replace this unit. System loads are critical and the loss of generation from HBRSEP Unit No. 2 would put CP&L in a potential situation of rotating blackouts until weather conditions moderate. Continuation of this weather pattern is creating a situation where thermal cycling of the lake may require longer than the existing 8 hour Completion Time. This situation is further exacerbated by extreme demand on the CP&L system grid which places a high importance on the continued operation of H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2.

The UHS provides the heat sink for operating and decay heat produced by various plant components during normal operation, transients, and accidents. The SW system and Component Cooling Water (CCW) system are used to transfer heat from plant components to the UHS. The SW system draws water directly from the UHS to provide cooling water to several plant components. Also, the SW system cools the CCW system, which in turn, cools other plant components. The CCW system serves as an intermediate barrier to prevent leakage of potentially radioactive fluid directly to the SW system and environment from plant components containing reactor coolant.

The two principal safety functions of the UHS are the dissipation of residual heat after reactor shutdown, and dissipation of residual heat after an accident. The basic performance requirements for the UHS are that a 22 day supply of water be available, and that the design basis temperatures of safety-related equipment not be exceeded. These performance requirements are verified through periodic surveillances which assure that lake water level is ≥ 218 feet mean sea level and SW inlet temperature is $\leq 95^{\circ}\text{F}$ while the plant is operating in MODES 1, 2, 3, and 4. If either of these surveillances are not satisfied while the plant is operating in MODES 1, 2, 3, and 4, the plant is required to be in MODE 3 within 6 hours and in MODE 5 within 36 hours. An 8 hour Completion Time is currently provided to restore SW temperature 95°F or less, after which a plant shutdown would be initiated. The current requirement for SW inlet temperature to be $\leq 95^{\circ}\text{F}$ was incorporated into the TS upon implementation of the Improved TS in November 1997.

In anticipation of the UHS temperature exceeding 95°F , a change was requested to TS LCO 3.7.8 by a letter dated June 26, 1998, that would allow plant operation above 95°F for up to 8 hours. The purpose of the change was to reduce the risk associated with plant shutdown transients. The TS change was supported by an engineering evaluation, which concluded that the components that rely on the SW system for cooling are able to operate at a SW temperature of up through 99°F . The current containment analyses use a SW temperature of 95°F as a limiting input parameter. Since there is a low probability that a DBA would occur during the proposed 72 hour Completion Time, and the magnitude of any temperature increase above 95°F is expected to be small, this proposed change is of low risk significance.

Prior to the June 1998 TS change being approved, unusually hot and dry weather conditions prompted CP&L to request a Notice of Enforcement Discretion (NOED) by letter dated June 27, 1998, until the TS change could be approved. The request proposed a similar change to TS LCO 3.7.8 with an upper temperature limit of 99°F , and as a long-term resolution for this condition, committed to perform an engineering analysis to justify an increase in the allowed SW temperature. The request for a NOED was accepted by the NRC on July 1, 1998.

Based on a request from the NRC Staff, CP&L subsequently submitted a supplement to the requested change to TS LCO 3.7.8 by a letter dated July 22, 1998, that limited the effective period of the change until September 30, 1998. The provisions of License Amendment No. 179, which were effective through September 30, 1998, were issued by letter dated July 29, 1998.

In March 1999, CP&L requested a TS change that would allow UHS temperature to be above 95°F (and less than 99°F) for 8 hours before a plant shutdown is required. Further evaluation and calculations performed since the summer of 1998 showed that the change did not increase the core damage frequency, had a negligible effect on the large early release frequency, and reduced the potential for plant shutdown transients. The proposed change did not request a long-term increase in UHS temperature because supporting engineering analyses were still in progress.

In April 1999, after discussion with the NRC Staff, CP&L requested a one-time TS change that would allow UHS temperature to be above 95°F and less than 99°F for 8 hours before a plant shutdown is required. The one-time change was requested because approval of the TS change submitted in March 1999 was not feasible by the requested date of June 30, 1999.

Safety Assessment

The UHS temperature is a function of insolation, operation of HBRSEP, Unit Nos. 1 (fossil) and 2 (nuclear), hydrology of Lake Robinson watershed, and meteorological conditions, including shifts in wind direction and velocity, which affect the efficiency of evaporative cooling, natural convection, and diurnal radiant heat losses. Average heat input to Lake Robinson due to insolation is comparable to the heat input from HBRSEP, Unit Nos. 1 and 2, during summer operation. Condenser cooling water and SW discharged from the plant is returned to Lake Robinson via a 4.2 mile discharge canal which originates just east of the plant, parallels the west shore of the lake, and terminates in the lake near its upper end. During full power operation, the nominal transit time of water through the discharge canal is approximately 3.5 hours. Hence, the effect of a plant shutdown in the event that the SW temperature limit is exceeded will not immediately be effective on the temperature of SW entering the plant. However, in the summer months during periods of hot weather, a diurnal effect of alternating insolation of the lake during the day and increased radiant and evaporative heat loss during the night results in a cyclic variation of lake temperature.

In support of HBRSEP's May 27, 1999, request for a UHS TS change, an evaluation of the effects of SW temperature in excess of 95°F was performed. SW system temperature is an input to the containment analysis contained in UFSAR Section 6.2. It is also a design assumption for the Spent Fuel Pool Cooling System, Auxiliary Feedwater System, CCW System and its loads, the Emergency Diesel Generators, Containment Air Recirculation Cooling System, room coolers for certain safety-related areas, and non-safety-related systems. Where SW temperature is relied upon to maintain these components within operating limits, this evaluation found that these components could perform their safety-related functions with SW temperatures above the 95°F limit and up through 99°F. The current containment analyses use a SW temperature of 95°F as a limiting input parameter. Since there is a low probability that a DBA would occur during the proposed NOED duration of 72 hours, and the magnitude of any temperature increase above 95°F is expected to be small, this request involves a low risk significance.

The SW system success criteria as credited in the Probabilistic Safety Analysis (PSA) have been evaluated. The number of SW pumps required under various accident scenarios is dependent upon SW flow rates and is not impacted by the increased SW temperature. Although the increased temperature may decrease the efficiency of heat exchangers cooled by SW, these systems remain capable of performing their intended functions as credited in the PSA. In addition, each additional shutdown during a cycle results in an additional 3.7E-7 to

the annual core damage frequency, and an additional $6.3E-10$ to the annual large early release frequency. It has also been determined that a small increase in peak containment pressure would have a negligible affect on the probability of containment failure.

The existing TS introduces the possibility of unwarranted plant shutdown transients. The risk associated with these transients could be reduced by an extension to the existing 8 hour Completion Time. The requested NOED would not allow continuous operation above the maximum design temperature of the SW system. If SW temperature exceeds the 95°F limit, 72 hours would be allowed to restore temperature to less than or equal to 95°F. Additionally, the requested NOED provides a reasonable likelihood for restoration of the LCO before requiring the plant to enter into a shutdown transient. An increase in SW temperature in excess of the design limit is expected to be small due to the limited time allowed by the proposed NOED in conjunction with the slow rate of temperature increase experienced from thermal changes in Lake Robinson. If the LCO is not restored within the revised Completion Time, Condition B of LCO 3.7.8 would be entered and a plant shutdown would be required.

The UHS for HBRSEP, Unit No. 2, is Lake Robinson, as noted in Updated Final Safety Analysis Report (UFSAR), Section 9.2.4, "Ultimate Heat Sink." Lake Robinson was developed for use initially for condenser cooling of HBRSEP, Unit No. 1, a fossil plant. When HBRSEP, Unit No. 2, a nuclear plant, was licensed on July 31, 1970, the unit was designed to use Lake Robinson both for condenser cooling and as the UHS. HBRSEP, Unit No. 2, was licensed in accordance with the proposed draft General Design Criteria, prior to the promulgation of 10 CFR 50, Appendix A. Therefore, the UHS was not designed to satisfy the requirements of the final General Design Criteria. Additionally, the UHS was not designed to satisfy Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," Position C.1, which stipulates a 30 day cooling supply. The UHS for HBRSEP, Unit No. 2, is capable of providing cooling water for at least 22 days following a Design Basis Accident (DBA), as stated in the Bases to LCO 3.7.8, "Ultimate Heat Sink."

As shown above, the proposed NOED will not be of potential detriment to the public health and safety.

Proposed Compensatory Actions

For the duration of the NOED, SW system temperatures will be monitored hourly when temperature is in excess of 95°F. Should temperature exceed 99°F, the plant will perform the Required Actions specified within existing LCO 3.7.8, Condition B.

During periods when SW system temperatures exceed 95°F, administrative controls will be implemented to restrict maintenance and operational activities that have a risk of adversely affecting plant reliability.

HBRSEP has previously submitted a proposed TS change, to be processed in an exigent manner, which will implement the proposed Completion Time on a longer-term basis.

Justification of Duration of the Noncompliance

This NOED is requested to remain in place until the proposed exigent change to TS, submitted by letter dated July 30, 1999, is approved by the NRC. Current engineering analyses demonstrate that supported systems are not adversely affected by a SW temperature of 99°F. The revised Completion Time is consistent with those provided for other systems of similar or greater safety significance. Also, based upon prior operational experience, the magnitude of temperatures exceeding 95°F are not expected to be significant.

Justification for the Proposed NOED

In accordance with AL 95-05, Section B, 2.0, "Situations Affecting Radiological Safety," Item 1, the requested NOED is necessary avoid the transient effects of a plant shutdown due to transitory temperature effects upon the UHS, and Section B, 3.0, "Situations Arising from Severe Weather or Other Natural Events."

The existing TS introduces the possibility of additional plant shutdown transients. The risk associated with these transients could be reduced by the proposed 72 hour Completion Time to restore the LCO. The requested NOED would not allow continuous operation above the maximum design temperature of the SW system. If SW temperature exceeds the 95° F limit, 72 hours would be allowed to restore the temperature to less than or equal to 95°F before a plant shutdown would be required. Additionally, the requested NOED provides a reasonable likelihood for restoration of the LCO before requiring the plant to enter into a shutdown transient.

No Significant Hazards Consideration Determination

CP&L has evaluated the plant conditions that result from this requested NOED and have concluded that the requested NOED does not involve a significant hazards consideration. The conclusion is in accordance with the criteria set forth in 10 CFR 50.92. The bases for the conclusion that the proposed change does not involve a significant hazards consideration is discussed below.

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

The requested NOED does not involve any physical alteration of plant systems, structures or components. The requested NOED increases the allowed time for the plant condition where SW temperature exceeds 95°F. SW system temperature is not assumed to be an initiating condition for any accident analysis evaluated in the safety analysis report (SAR).

Therefore, the proposed time increase for restoration of SW temperature to less than or equal to 95°F does not involve an increase the probability of an accident previously evaluated. The SW system supports operability of safety-related systems used to mitigate the consequences of an accident. The magnitude of any increase in SW temperature in excess of the design limit is expected to be small based on historical data and experience for the UHS. 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?

This requested NOED does not involve any physical alteration of plant systems, structures or components. The increased time for SW temperature to exceed 95°F 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 requested NOED will allow an increase in the allowed time that SW temperature may exceed 95°F, and thereby delays the requirement to initiate a plant shutdown. There are design margins associated with systems, structures and components that are cooled by the SW system that are affected. The SW system temperature is an input assumption for mitigating the effects of design basis accidents. By maintaining an appropriate time limit on the allowed time for SW temperature to exceed 95°F, any potential impact on equipment operating margins is minimized. Therefore, there is no significant reduction in margin of safety associated with this change.

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 requires no 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. CP&L has reviewed this request against these criteria and determined that the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22 (c)(9).

Requested Change

The requested NOED involves an allowance to continue operation for a period of 72 hours with the UHS at a temperature greater than the temperature limits provided in Technical Specifications Section 3.7.8. This period of time may allow diurnal effects to return the UHS to within its temperature limits prior to initiating a plant shutdown.

Basis

The requested NOED 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 requested NOED does not involve a significant hazards consideration.
2. The requested NOED is limited to the provision of increasing the Completion Time for the UHS to exceed of its 95°F temperature limit. This request does not allow for an increase in plant power level, does not increase the production, nor alter the flow path or method of disposal of radioactive waste or byproducts. There will be a slight increase in the temperature of the plant cooling water effluent, but the effect is very small and the effluent will remain within the limits provided by the National Pollutant Discharge Elimination System (NPDES) permit. Therefore, the request does not result in a significant change in the types, or significant increase in the amounts, of any effluent that may be released offsite.
3. The requested NOED does not involve a physical change to the facility design, configuration, maintenance, or testing. The request is limited to allowing operation to continue for a period of 72 hours. Therefore, the requested NOED does not affect individual or cumulative occupational radiation exposure.