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WILKERSON, T.M. Carolina Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
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SUBJECT: Application for amend to license DPR-23, requesting change to
TS to provide required action & completion time for ultimate
heat sink in event that svc water temperature exceeds design
limit.

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Carolina Power & Light Company

Robinson Nuclear Plant
3581 West Entrance Road
Hartsville SC 29550

RNP File No: 13510HA

Serial: RNP-RA/98-0122

JUN 26 1998

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 TECHNICAL SPECIFICATIONS CHANGE

ULTIMATE HEAT SINK

Sir or Madam:

Carolina Power & Light (CP&L) Company requests a change to the Technical Specifications (TSs) for the H. B. Robinson Steam Electric Plant (HBRSEP), Unit No. 2 in accordance with 10 CFR 50.90. The requested change is to provide a Required Action and Completion Time for the Ultimate Heat Sink in the event that service water temperature exceeds the design limit.

Attachment I provides an affidavit as required by 10 CFR 50.30(b).

Attachment II provides a description of the current condition, a description of the proposed change, a safety assessment, a basis for a conclusion that the proposed change does not involve a significant hazards consideration and an environmental impact consideration which demonstrates that the proposed change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)((9) and (10)).

Attachment III provides a markup of the proposed revised TS.

Attachment IV provides retyped pages for the proposed TS and Bases.

In accordance with 10 CFR 50.91(b), CP&L is providing the State of South Carolina with a copy of this letter with attachments.

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PDR ADOCK 05000261
P PDR

CP&L requests that this proposed change be reviewed and approved on an exigent basis to permit implementation of the change during this summer. The proposed change does not involve a significant hazards consideration.

If you have any questions concerning this matter, please contact Mr. Harold Chernoff of my staff.

Very truly yours,



T. M. Wilkerson

Manager - Regulatory Affairs

ALG/alg

Attachments

- I. Affidavit
- II. Request For Technical Specifications Change, Refueling Operations - Nuclear Instrumentation
- III. Markup Of Current Technical Specifications And Bases Pages
- IV. Retyped Technical Specifications And Bases

c: Mr. Max K. Batavia, Chief, Bureau of Radiological Health (SC)
Mr. L. A. Reyes, USNRC, Region II
Mr. J. W. Shea, USNRC
USNRC Resident Inspector, HBRSEP
Attorney General (SC) (w/out Enclosures)

Affidavit

State of South Carolina
County of Darlington

D. E. Young, having been first duly sworn, did depose and say that the information contained in letter RNP-RA/98-0122 is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

Dale E Young

Sworn to and subscribed before me

this 26th day of June 1998

(Seal) Albert Cannon
Notary Public for South Carolina

My commission expires: March 22nd 2005

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

REQUEST FOR TECHNICAL SPECIFICATIONS CHANGE
ULTIMATE HEAT SINK

Description of Current Condition

The Ultimate Heat Sink (UHS) provides a heat sink for removing heat from plant equipment during a transient or accident, as well as during normal operation. This is done by utilizing the Service Water System (SWS) and the Component Cooling Water (CCW) System.

The UHS has been 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 system intake structures as discussed in the Updated Final Safety Analysis Report (UFSAR), Section 9.2.4. 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 are that a 22 day supply of water be available, and that the design basis temperatures of safety related equipment not be exceeded.

The UHS is required to be OPERABLE and is considered OPERABLE if the maximum temperature does not exceed the maximum design temperature of the equipment served by the SWS. To meet this condition, the UHS temperature should not exceed 95°F.

If the maximum temperature exceeds 95°F, the plant is required to be in MODE 3 within 6 hours and subsequently to MODE 5 within 36 hours. No time is allowed for service water temperature to exceed 95°F without initiating preparations to shut down the plant.

Description of the proposed change

A new Condition is proposed to be added to Limiting Condition For Operations (LCO) 3.7.8, "Ultimate Heat Sink," for the plant condition in which service water temperature exceeds 95°F. The Required Action is to restore service water temperature to less than or equal to 95°F with a Completion Time of 8 hours. The 8 hour Completion Time is acceptable considering the low probability of a Design Basis Accident occurring during this period and is consistent with the existing Completion Time for conditions of similar safety significance.

Safety Assessment

The UHS temperature is a function of insolation, operation of H. B. Robinson Steam Electric Plant (HBRSEP), Units No. 1 (fossil) and 2 (nuclear), hydrology of Lake Robinson watershed, and meteorological conditions 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 HBRSEP, Unit No. 1 and 2 produced heat input during the summer. Condenser cooling water and SWS discharged from the plant is returned to greater Lake Robinson via a 4.2 mile long 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 of HBRSEP, the nominal transit time of water through the discharge canal is approximately 3.5 hours (Reference 1). Hence, the effect of a plant shutdown in the event that the service water temperature limit is exceeded will not immediately be effective on the temperature of 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.

The 8 hour Completion Time is consistent with existing Required Actions of similar safety significance. Comparable Completion Times to restore design basis parameters are contained in LCOs 3.5.4, "Refueling Water Storage Tank (RWST), and 3.6.5, "Containment Air Temperature." If the RWST boron concentration is less than required, or the RWST temperature is outside of the required limits for operability of the RWST, Required Action 3.5.4 A.1 allows 8 hours to restore RWST boron concentration or RWST temperature to within limits. In this condition, neither the Emergency Core Cooling System (ECCS) nor the Containment Spray System can perform their functions in accordance with design. The 8 hour Completion Time was developed based upon the time needed to restore the RWST to within temperature or boron limits and upon the fact that the contents of the RWST are still available for injection. Similarly, if containment average air temperature is not within the limit, Required Action 3.6.5 A.1 requires that containment average air temperature be restored to within the limit within 8 hours. The 8 hour Completion Time was developed based upon the low sensitivity of containment analysis to the initial temperature assumed in the analysis and to provide sufficient time to correct minor problems.

The existing Specification introduces the possibility of additional plant shutdown transients. The risk associated with these transients could be reduced by the addition of a Required Action Completion Time to restore the LCO. The proposed change to Technical Specifications does not allow continuous operation above the maximum design temperature of the SWS. If service water temperature exceeds the 95°F limit, 8 hours would be allowed to restore the service water temperature to below 95°F before plant shutdown would be required. Additionally, the proposed Completion Time provides a reasonable likelihood for restoration of the LCO before requiring the plant to enter into a shutdown transient. 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 slow rate of temperature increase experienced from thermal changes in Lake Robinson. If the LCO is not restored within the Completion Time, Condition B of LCO 3.7.8 would be entered and a plant shutdown would be required.

An evaluation of the effects of service water temperature in excess of 95°F has been performed. The SWS temperature is an input to the containment analysis contained in UFSAR Section 6.2. The SWS temperature is also a design assumption for the Spent Fuel Pool Cooling System, Auxiliary Feedwater System, Component Cooling Water 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 components rely upon service water temperature to maintain the components within operating temperature limits, the evaluation found that the components could withstand service water temperatures above the 95°F limit and up to 99°F.

The limiting aspect identified in this evaluation was operation of the Steam Driven Auxiliary Feedwater 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 service water temperature of 95°F as a limiting input parameter. Therefore, it is appropriate to limit the amount of time that service water temperature may be above the 95°F. Since the probability that a Design Basis Accident would occur during this period of time is low, and the expected temperature increase above the limit is small this proposed change is of low risk significance.

Lake Robinson was developed for use initially for condenser cooling for HBRSEP, Unit No. 1. When HBRSEP, Unit No. 2 was licensed on July 31, 1970, the unit was designed to use Lake Robinson both for condenser cooling and UHS. HBRSEP, Unit No. 2 was licensed in accordance with proposed draft General Design Criteria and prior to the promulgation of 10 CFR 50, Appendix A, and therefore, the UHS was not designed to satisfy the requirements of the final General Design Criteria. Additionally, the UHS does not meet the Regulatory Guide 1.27, "Ultimate Heat Sink for Nuclear Power Plants," position for 30 day cooling capacity as is stated in the Bases to LCO 3.7.8. Because the UHS cooling capacity is less than that normally provided for plants utilizing standard technical specifications, the proposed addition of a Required Action Completion Time to LCO 3.7.8 is appropriate for plant specific consideration in the Technical Specifications.

References:

1. NUREG-75/024, "Final Environmental Statement, H. R. Robinson Nuclear Steam Electric Plant Unit 2," U. S. Nuclear Regulatory Commission, April 1975.

No Significant Hazards Consideration Determination

Carolina Power & Light (CP&L) Company has evaluated the proposed Technical Specification change and has concluded that it 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 are discussed below.

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 the 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.

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).

Proposed Change

This change involves an allowance to continue operation for a period of 8 hours with the Ultimate Heat Sink at a temperature greater than the temperature limits provided in Technical Specifications LCO 3.7.8, "Ultimate Heat Sink (UHS)."

Basis

The requested 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. The proposed change is limited to the provision of an allowed out of service time for the UHS due to exceeding its temperature limits. This change 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 permitted plant effluent discharge temperature limit will not be exceeded. Therefore the proposed change 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 proposed change does not involve a physical change to the facility design, configuration, maintenance, or testing. The proposed change is limited to allowing operation to continue for a period of 8 hours. Therefore the proposed change does not affect individual or cumulative occupational radiation exposure.