



Carolina Power & Light Company

Robinson Nuclear Plant
3581 West Entrance Road
Hartsville SC 29550

Serial: RNP-RA/00-0053

JUN 5 2000

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 FOR ULTIMATE HEAT SINK (UHS)

Ladies and Gentlemen:

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 proposed change provides Required Actions and Completion Times for the Ultimate Heat Sink (UHS) in the event that the service water temperature exceeds the 97°F surveillance acceptance 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 TS and Bases.

Attachment IV provides retyped pages for the 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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The proposed change is consistent with the approach proposed by the NRC Staff and discussed with the Technical Specification Task Force (TSTF) in a meeting on March 7, 2000. The TSTF has not endorsed the NRC Staff approach as the industry resolution of this issue. As such, this request is not an endorsement of the NRC Staff's approach for generic resolution. CP&L considers this request to be plant specific.

CP&L requests that the proposed change be reviewed and made effective by April 30, 2001, with at least 60 days provided for implementation. CP&L is prepared to meet with the NRC at their earliest convenience to discuss the proposed change. The proposed change does not involve a significant hazards consideration.

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

Sincerely,


R. L. Warden
Manager - Regulatory Affairs

DNB/dnb

Attachments

- I. Affidavit
- II. Request For Technical Specifications Change, Ultimate Heat Sink (UHS)
- 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, NRC, Region II
Mr. R. Subbaratnam, NRC, NRR
NRC Resident Inspector, HBRSEP
Attorney General (SC) (w/out Enclosures)

Affidavit

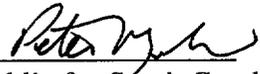
State of South Carolina
County of Darlington

J. W. Moyer, having been first duly sworn, did depose and say that the information contained in letter RNP-RA/00-0053 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.



Sworn to and subscribed before me

this 2 day of JUNE 2000

(Seal) 
Notary Public for South Carolina

My commission expires: _____

My Commission Expires
Sept. 13, 2009

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
REQUEST FOR TECHNICAL SPECIFICATIONS CHANGE
ULTIMATE HEAT SINK (UHS)

Description of Current Condition

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 Service Water (SW) inlet temperature is $\leq 97^{\circ}\text{F}$ while the plant is operating in MODES 1, 2, 3, and 4.

During the unusually hot, dry weather summers of 1998 and 1999, CP&L requested and received an allowance to exceed the 95°F SW temperature Technical Specification (TS) limit for up to 8 hours. These temporary TS changes were supported by an engineering evaluation. CP&L also requested a permanent TS change to provide similar provisions on March 26, 1999 (withdrawn by CP&L letter dated April 25, 2000). The capability of the Containment Air Recirculation Fan Coolers to remove heat from the containment following a Main Steam Line Break (MSLB) inside containment or a Loss of Coolant Accident (LOCA) inside containment could not be evaluated in detail without reanalyzing these events at the higher SW temperature. Therefore, CP&L reanalyzed the containment response to a MSLB inside containment and a Large Break LOCA inside containment. CP&L submitted a proposed change to the Technical Specifications on May 27, 1999 that justifies plant operation at a higher SW temperature (97°F) for an unlimited period of time. This TS change was issued as Amendment 187 on April 18, 2000. The requested and received TS change does not provide any flexibility to evaluate available design margins prior to initiating a unit shutdown if the temperature exceeds 97°F . Based on evaluations conducted during 1998 and 1999, CP&L has concluded that if the SW temperature exceeds the new 97°F temperature limit, design margins will still be available.

Description of the Proposed Change

A new ACTION A is proposed to require verifying within 8 hours that the required cooling capacity is maintained and once per 12 hours, thereafter, when the SW temperature is not within limit (i.e., 97°F). Additionally, the new ACTION requires that the SW temperature be verified $\leq 99^{\circ}\text{F}$ once per 12 hours. Current ACTION A is relettered as ACTION B and the Condition is modified to apply when the Required Action and associated Completion Time is not met or when the UHS is inoperable for reasons other than Condition A. The proposed TS change allows continued operation indefinitely provided the required cooling capacity is assured and SW Temperature is $\leq 99^{\circ}\text{F}$.

Safety Assessment

In support of CP&L'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, non-safety-related systems, and other small auxiliary loads. Where SW temperature is relied upon to maintain these components within operating limits, this evaluation found that the components could perform their safety-related functions with SW temperatures up through 99°F.

A detailed discussion of the affects of SW temperature up to 99°F on plant equipment is included in the May 27, 1999 submittal. The discussions in that submittal reflect a proposed maximum SW temperature of 97°F. The 97°F temperature limit was adjusted downward from the evaluated 99°F limit to reserve margin for operational degradation, such as, but not limited to, heat exchanger tube plugging and fouling.

As previously discussed, equipment required to mitigate a DBA is not adversely affected by SW temperatures as high as 99°F. Additionally, the containment response to accidents has been analyzed assuming 100°F service water temperature in support of Amendment No. 187 to the Technical Specifications, and the results were acceptable. The lack of an ACTION to address periods when the SW temperature limit may be exceeded introduces the possibility of unwarranted plant power changes. The risk associated with a plant shutdown transient could be reduced by adopting the proposed ACTION (ACTION A) that requires verifying that cooling capacity is maintained when SW temperature exceeds 97°F but is $\leq 99^\circ\text{F}$. The principle design margin available is assumed to be plugging for the emergency diesel generator heat exchangers. Additional margin may be available by evaluating other parameters. At any time while in Condition A, if required cooling is not assured, Condition A must be exited and Condition B entered, which requires the plant be in MODE 3 within 6 hours and MODE 5 within 36 hours.

The following table provides the components and associated parameters that must be evaluated when SW temperature exceeds 97°F but is $\leq 99^\circ\text{F}$. Other safety related components (with the exception of the containment fan motor coolers) and non safety related components have been evaluated and found to be able to perform their function at SW temperature up to 100°F. The containment fan motor coolers were evaluated as being capable of performing their function at SW temperatures up to 99°F.

**PARAMETERS NEEDING EVALUATION FOR
 SW TEMPERATURE > 97°F BUT ≤ 99°F**

<u>COMPONENT</u>	<u>PARAMETER evaluated</u>	<u>SW TEMPERATURE LIMIT</u>
Emergency Diesel Generators	tube plugging limit and EDG loading must be reviewed	97°F w/2% heat exchanger tube plugging and 110% load
		99°F w/0% heat exchanger tube plugging and 103.4% load
Component Cooling Water	tube plugging limit	99°F w/5% tube plugging
Containment Fan Motor Coolers	N/A	99°F
Other Safety Related Components	N/A	100°F
Non Safety Related Components	N/A	100°F
Containment Response to Accident Analyses	N/A	100°F

The 8 hour Completion time of Required Action A.1 was developed considering the time required to complete the evaluation of required cooling capacity once the Condition is entered. The 12 hour Completion Time of Required Action A.2 is based on shift schedules for convenience and is considered acceptable since temperature monitoring capability is available to quickly detect an increase in SW temperature throughout the period of Condition A.

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 CP&L 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 Required Actions for the plant condition where SW temperature exceeds the TS limit. The SW system temperature is not assumed to be an initiating condition of any accident analysis evaluated in the safety analysis report (SAR). Therefore, the revised limitations for SW 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. The SW system supports operability of safety-related systems used to mitigate the consequences of an accident. Plant equipment has been analyzed and determined able to perform its safety-related function at a SW temperature of 99°F. Performance of the containment has been analyzed in support of Amendment No. 187 to Technical Specifications assuming 100°F service water temperature and the results were acceptable. The magnitude of any increase in SW temperature in excess of the TS limit is expected to be small based on historical data and experience for the UHS. An evaluation would be performed to assure required cooling capability. 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 SW when near or slightly above the 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 not allow continued operation with the SW temperature above the design basis limit. The proposed change will allow continued operation provided the required cooling capacity is verified and periodic monitoring is invoked to verify the SW temperature remains less than or equal to 99°F. Design margins are affected which are associated with systems, structures and components which are cooled by the SW system,

and system temperature is an input assumption for mitigating the effects of a DBA. However, allowing SW temperature to exceed the surveillance acceptance limit, as long as required cooling is verified, will not significantly reduce the margin of safety associated with this proposed 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

The proposed TS change allows continued operation indefinitely provided the required cooling capacity is maintained and SW Temperature is $\leq 99^{\circ}\text{F}$. A new ACTION A will require verifying that required cooling capacity be maintained when the SW temperature is not within limit and the SW temperature be verified $\leq 99^{\circ}\text{F}$ once per 12 hours. The proposed TS change requires a plant shutdown if the SW temperature exceeds 99°F .

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 TS change allows continued operation indefinitely provided the required cooling capacity is maintained and SW Temperature is $\leq 99^{\circ}\text{F}$. 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 because the temperature of the plant cooling water effluent is dominated by the significantly larger discharge from Circulating Water System. The plant effluent discharge temperature limits are not being changed and the discharge temperature will not exceed the limits specified in National Pollutant Discharge Elimination Permit SC 0002925.

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 does not involve changing programs, requirements or routine operations in radiological controlled areas. Therefore the proposed change does not affect individual or cumulative occupational radiation exposure.

United States Nuclear Regulatory Commission
Attachment III to Serial: RNP-RA/00-0053
4 Pages

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

REQUEST FOR TECHNICAL
SPECIFICATIONS CHANGE ULTIMATE HEAT SINK (UHS)

MARKUP OF CURRENT TECHNICAL SPECIFICATIONS
AND BASES PAGES

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 .

Required Action and associated Completion Time not met.
OR
UHS inoperable for reasons other than Condition A.

B

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. UHS inoperable.	A.1 Be in MODE 3.	6 hours
	<u>AND</u> A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.8.1 Verify water level of UHS is \geq 218 ft mean sea level.	24 hours
SR 3.7.8.2 Verify service water temperature is \leq 97°F.	24 hours

A.1 Service water temperature not within limit.	A.1 Verify required cooling capacity maintained.	8 hours
	<u>AND</u>	
	A.2 Verify service water temperature is \leq 99°F	Once per 12 hours thereafter
		Once per 12 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 97°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

A.1, and A.2

for reasons other than Condition A

Insert B
3.7-50A

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.

the Required Actions and associated Completion Times are not met or the

(continued)

INSERT B 3.7-50A

With the SW temperature $> 97^{\circ}\text{F}$ but $\leq 99^{\circ}\text{F}$, the required cooling capacity of the SW System must be verified by evaluating the existing operational condition of the systems and components served by the SW System and verifying that each is capable of performing its safety related function. The required cooling capacity must also be re-verified once per 12 hours. In addition, the SW temperature must be verified $\leq 99^{\circ}\text{F}$ once per 12 hours. The temperature verification ensures the SW temperature remains below the maximum water temperature allowed for the safety related components to perform their safety function.

The Completion Time of Required Action A.1 was developed considering the time required to complete the evaluation of required cooling capacity once the Condition is entered.

The Completion Time of Required Action A.2 is based on shift schedules for convenience and is considered acceptable since temperature monitoring capability is available to detect an increase in SW temperature throughout the period of Condition A.

B.1, and B.2

United States Nuclear Regulatory Commission
Attachment IV to Serial: RNP-RA/00-0053
6 Pages

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

REQUEST FOR TECHNICAL
SPECIFICATIONS CHANGE ULTIMATE HEAT SINK (UHS)

RETYPED TECHNICAL SPECIFICATIONS AND BASES

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Service water temperature not within limit.	A.1 Verify required cooling capacity maintained. AND A.2 Verify service water temperature is $\leq 99^{\circ}\text{F}$.	8 hours AND Once per 12 hours thereafter Once per 12 hours
B. Required Action and associated Completion Time 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.7.8.1 Verify water level of UHS is ≥ 218 ft mean sea level.	24 hours

Surveillance Requirements (continued)

SURVEILLANCE	FREQUENCY
SR 3.7.8.2 Verify service water temperature is \leq 97°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 97°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

A.1, and A.2

With the SW temperature $> 97^{\circ}\text{F}$ but $\leq 99^{\circ}\text{F}$, the required cooling capacity of the SW System must be verified by evaluating the existing operational condition of the systems and components served by the SW System and verifying that each is capable of performing its safety related function. The required cooling capacity must also be re-verified once per 12 hours. In addition, the SW temperature must be verified $\leq 99^{\circ}\text{F}$ once per 12 hours. The temperature verification ensures the SW temperature remains below the maximum water temperature allowed for the safety related components to perform their safety function.

(continued)

BASES

ACTIONS

A.1, and A.2 (continued)

The Completion Time of Required Action A.1 was developed considering the time required to complete the evaluation of required cooling capacity once the Condition is entered.

The Completion Time of Required Action A.2 is based on shift schedules for convenience and is considered acceptable since temperature monitoring capability is available to detect an increase in SW temperature throughout the period of Condition A.

B.1, and B.2

If the Required Actions and associated 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.

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 available 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.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.7.8.2 (continued)

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 $\leq 97^{\circ}\text{F}$.

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.
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