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 GRACE, J. N.      Region 2, Office of Director

SUBJECT: Forwards 10CFR50.59 review supporting reduced battery duty cycle of 1 h, per 870519 meeting. Review implements emergency operating procedures network requiring ac power be restored to at least one battery chargers within 30 minutes.

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261  
LICENSE NO. DPR-23  
SPECIAL SUBMITTAL - 10 CFR 50.59 REVIEW FOR  
REDUCTION OF STATION SAFETY-RELATED BATTERIES DUTY CYCLE

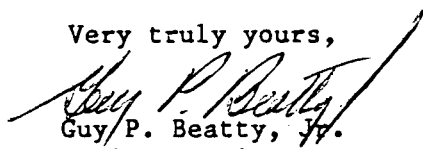
Dear Dr. Grace:

This submittal is provided as follow-up to a meeting held in your Region II offices May 19, 1987. During the meeting, a commitment was made to provide your staff a copy of the 10 CFR 50.59 review supporting a reduced battery duty cycle of one hour. Carolina Power and Light Company (CP&L) agreed to submit the review prior to Unit 2 attaining criticality following the current refueling outage. The review copy is enclosed.

The 10 CFR 50.59 review takes credit for implementation of the Emergency Operating Procedure (EOP) network which requires AC power be restored to at least one of the two associated safety-related battery chargers within thirty minutes whenever a battery is in-service, thereby assuring full power source capability to at least one battery buss. By reducing the battery duty cycle to one hour, Unit 2 becomes the fifth commercial nuclear power plant in the Region with this capability.

Should you have any questions concerning this submittal, please contact my staff.

Very truly yours,

  
Guy P. Beatty, Jr.  
Vice President

Robinson Nuclear Project Department

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Enclosure

cc: H. E. P. Krug  
Document Control Desk

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2215

SAFETY REVIEW

REDUCTION OF STATION SAFETY RELATED BATTERIES DUTY CYCLE

FROM 8 HOURS TO 1 HOUR

REVISION 0

James J. Shupp 5/21/87  
PREPARED BY DATE

John H. Beckman 5/22/87  
NUCLEAR PLANT OPERATIONS DATE  
SAFETY REVIEW

Jim Kelly 5/22/87  
ELECTRICAL/I&C DATE  
SAFETY REVIEW

W. J. Harnage 5/22/87  
APPROVED BY DATE

## SAFETY REVIEW

### REDUCTION OF STATION SAFETY RELATED BATTERIES DUTY CYCLE FROM 8 HOURS TO 1 HOUR

#### PURPOSE AND SCOPE

The scope of this Safety Analysis is to evaluate a proposed change in the duty cycle of the 125 VDC safety-related batteries from eight (8) hours to one (1) hour. The change is permitted by 10CFR50.59 provided the change does not require a revision to the Technical Specifications or involve an Unreviewed Safety Question.

#### TECHNICAL SPECIFICATIONS

The Unit Technical Specifications require that two trains of safety-related 125 VDC power be operational when the reactor is critical. The battery duty cycle affects only the time that the DC power train is considered operable after the loss of the battery charger. The applicable battery bus will be considered not to meet the operability requirement if a battery charger cannot be immediately restored to the bus. Therefore, the proposed change does not require a Technical Specification revision.

## UNREVIEWED SAFETY QUESTION

### 1. Probability of an Analyzed Accident

The most limiting single failure assumed in the accident analysis is the loss of one emergency diesel generator. The station battery duty cycle is not related to that single failure nor the initiation of any analyzed accident in Chapter 15 of the Updated Final Safety Analysis Report (UFSAR). Therefore, the proposed change will not increase the probability of an analyzed accident.

### 2. Consequences of an Analyzed Accident

The station safety related battery is required to support accident mitigating DC equipment during the period when a station battery charger is not available. The one hour duty cycle envelopes the period for which the battery will be without a charger (no more than 30 minutes) by a margin of 100%. AC power to at least one of the two battery chargers will be restored prior to the expiration of the duty cycle while assuming an accident or abnormal occurrence in conjunction with the most limiting single failure (loss of one emergency diesel generator). Therefore, the proposed change will not increase the consequences of any previously analyzed accident or equipment malfunction.

3. Probability of Analyzed Equipment Malfunction

The proposed change involves no modifications to existing equipment nor does it affect the design basis of any existing system or equipment important to safety. The change is simply a reduction in duty cycle and does not change any other DC Distribution System basis (i.e. minimum terminal voltage). Therefore, the probability of an analyzed equipment malfunction is not increased.

4. Possibility of an Accident or Malfunction not Previously Analyzed

The proposed change will not require the 125 VDC safety-related power system to operate beyond its design basis parameters (i.e. battery charger will be restored prior to end of duty cycle). This is in conjunction with the fact that no physical changes to existing systems or equipment are involved, ensures that no new failure mechanisms or modes are introduced. Therefore, the proposed change does not create the possibility of an accident or equipment malfunction not previously analyzed.

5. Margin of Safety in Technical Specification Bases

The battery duty cycle is not addressed in the basis of any Technical Specification. Additionally, a change in the battery duty cycle does not alter the basis of any accident mitigating equipment (as discussed above) and therefore will not reduce the margin of safety as described in the unit Technical Specifications.

Conclusion

The proposed change in the duty cycle for the 125 VDC safety-related batteries from eight (8) hours to one (1) hour does not require a change to the Technical Specifications or introduce an Unreviewed Safety Question. Therefore in accordance with 10CFR50.59 this change can be made without prior approval from the Nuclear Regulatory Commission. Furthermore, the reduction in duty cycle does not reduce the ability of the 125 VDC power system to provide sufficient capacity and capability to perform its design function because the battery charger will be restored before the battery duty cycle is expended for all analyzed scenarios involving loss of AC power. The safety-related 125 VDC power system will therefore continue to meet the requirements of 10CFR50 Appendix A General Design Criterion 17 and NUREG-0800 Section 8.3.2 applicable to the capacity and capability of

Conclusion (Continued)

the batteries. In addition, the one hour duty cycle is consistent with IEEE 946-1985 Section 5.1, "Determination of Battery Duty Cycle and Battery Size".

REFERENCES

H. B. Robinson Unit No. 2 UFSAR

Section 8.3.2

Section 15.0

Table 15.0.9-1

H. B. Robinson Unit No. 2 Technical Specifications

Section 3.7

IEEE 946-1985 "Recommended Practice for the Design of Safety-Related DC Auxiliary Power Systems for Nuclear Power Generating Stations"

Section 5.1

NUREG-0800 USNRC Standard Review Plan

Section 8.3.2

10CFR50 Appendix A General Design Criterion 17

H. B. Robinson Plant Operating Manual

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