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SUBJECT: Application for amend to License DPR-23, consisting of Tech Spec Change 3.7.2.d, revising Tech Specs to provide a one time extension. Request required to support continued operation until repairs to generator completed.

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Carolina Power & Light Company

ROBINSON NUCLEAR PROJECT DEPARTMENT  
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March 15, 1987

Robinson File: 135101

Serial: RNP/87-1179  
(10CFR50.90/10CFR2.101)

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261/LICENSE NO. DPR-23  
REQUEST FOR LICENSE AMENDMENT OF TECHNICAL SPECIFICATION 3.7.2.d  
DIESEL GENERATOR INOPERABLE TIME

Dear Sir:

SUMMARY:

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, Carolina Power & Light Company (CP&L) hereby requests a revision to the Technical Specifications (TS) for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2). The revision is to provide a "one time" extension to the requirements of TS 3.7.2.d. This request extends the allowable time one diesel generator may remain inoperable an additional seven (7) days, beginning at 2130 hours, Monday, March 16, 1987, and ending at 2130 hours, Monday, March 23, 1987.

This license amendment request is required to support continued operation of HBR2 until repairs to Diesel Generator "B" now in progress can be completed.

DISCUSSION

On Monday, March 9, 1987, at 2104 hours, Diesel Generator (DG) "B" was started in accordance with an operational surveillance test. The Diesel Generators are Colt Industries, Fairbanks-Morse Engine Division 38TD8-1/8 turbocharged opposed-piston internal combustion diesel engines. At 2130 hours, DG "B" tripped on high crankcase pressure. The DG was taken out of service in accordance with normal operating procedures. This event initiated a 7-Day Limiting Condition for Operation, in accordance with TS 3.7.2.d. As required by the Technical Specifications, DG "A" has been tested daily to verify its operability.

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Initial investigation following the high crankcase pressure trip identified a broken nipple in a vent line to the crankcase eductor, which has been repaired. During subsequent running of the DG to verify the repair, a metallic scraping sound was noticed in the aft section of the engine during coastdown. Inspection of the scavenging air blower revealed scoring damage on one end of the blower impeller lobes. The blower was replaced with one modified by the factory in response to action initiated pursuant to a Manufacturer's Service Information Letter.

On March 13, 1987, DG "B" was started to verify operability following scavenging air blower replacement in preparation for return to service. The DG was partially loaded for approximately 12 minutes when again high crankcase pressure (oscillating between a pressure and vacuum) was noted. The DG was secured and a tear-down/inspection of the cylinder liners and pistons was initiated. Disassembly is currently underway around the clock to ensure rapid recovery of the engine. The root cause of the mechanical failure has yet to be determined. Detailed component inspection and cause evaluation will occur during disassembly and examination of affected components over the next few days.

Although the engine problems were identified five days after the initial DG trip, it is believed the conditions had existed since the first high crankcase pressure was noted. The broken vent line nipple and blower impeller problems masked the internal engine conditions until the March 13 test run.

The time needed to repair the additional problems in addition to the repairs already completed will extend DG "B" inoperability beyond the seven days currently permitted by TS 3.7.2.d. Therefore, CP&L is requesting this "one time" license amendment to complete repairs.

An evaluation has been performed to determine the effect of the extension of inoperability of one diesel generator for an additional seven days. This evaluation considered two scenarios, station blackout and a small break LOCA. The plant was modeled using the fault tree methodology provided in NUREG CR-3226, "Station Blackout Accident Analyses," and NUREG CR-2989 "Reliability of Emergency AC Power Systems at Nuclear Power Plants." EPRI's CAFTA, a fault tree work station and quantification code, was utilized to generate the system failure modes or "cutsets." The results were:

Station Blackout (4-hour loss of offsite AC power)

<u>Core Melt Frequency</u>	<u>(Events/Rx-Year)</u>
Baseline (7 day LCO)	2.9 E-6
14 day LCO	3.2 E-6

Small Break LOCA

<u>Core Melt Frequency</u>	<u>(Events/Rx-Year)</u>
Baseline (7 day LCO)	1.31 E-7
14 Day LCO	1.45 E-7

These results show that the additional LCO duration represents an insignificant contribution to "core melt frequency" thereby creating no significant hazard.

Additionally, the daily testing to verify operability of DG "A" will continue as long as DG "B" remains out of service. DG "A" is a totally redundant emergency source of electrical power capable of supplying all loads necessary for safe shutdown of the reactor. Should DG "A" become inoperable during the period, the reactor would be placed in hot shutdown.

In addition to the redundant DG, H. B. Robinson has installed a Dedicated Shutdown (DS) Diesel Generator capable of providing power to sufficient loads to safely shut down the reactor and maintain hot shutdown condition for an extended period of time in the event of a loss of offsite and onsite AC power. This additional source of safe shutdown power was installed and is maintained pursuant to 10CFR50, Appendix R. Procedures are in effect to provide the alternate shutdown capability.

SIGNIFICANT HAZARDS ANALYSIS:

CP&L has reviewed the subject TS change request in accordance with the standards set forth in 10CFR50.92 and determined that this change does not constitute a significant hazard based upon the following considerations:

1. Operation of the facility in accordance with the proposed amendment would not involve a significant increase in the probability or consequences of an accident previously analyzed because capability to power vital and auxiliary system components remains available via the redundant DG. Additionally, during the proposed extended period, availability of the redundant power source is assured by performing the operability surveillance daily.
2. Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated because extending the allowed outage period for one diesel generator does not necessitate physical alterations of the plant or changes in parameters governing normal plant operation.
3. Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety because the amendment extends only one period that the DG remains out of service by an added seven days. An analysis was performed to evaluate this extension using methodology contained in NUREG CR-3226 and NUREG CR-2989. The results show the additional time that the diesel generator remains out of service represents no significant contribution to "core melt frequency." Additionally, capability beyond the redundant operable DG is provided by the Dedicated Shutdown DG which supplies power to sufficient equipment, independent of emergency power supply, to safely shut down and maintain the reactor in a hot shutdown condition in the event of loss of all AC power. The weekly operability test of the Dedicated Shutdown DG will be increased to twice weekly during the extension period while DG "B" is out of service.

#### ENVIRONMENTAL ASSESSMENT

CP&L has reviewed this request and determined that the proposed amendment changes a requirement with respect to the operability of a facility component located within the restricted area, as defined in 10CFR20. Operation in accordance with the proposed amendment will not result in an increase in the amount or a change in the type of any effluents that may be released offsite nor will it result in a significant increase in individual or cumulative occupational radiation exposure. Operation without the proposed amendment, however, could increase the effluents released because of the amount of reactor coolant system water processing required for shutdown and restart of the reactor. CP&L has previously determined that the proposed amendment does not involve a significant hazards consideration. Based on the above reasoning, the proposed amendment meets the eligibility criteria for the categorical exclusion set forth in 10CFR51.22(c)(3). Pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment is required in connection with the issuance of the amendment.

#### DISCUSSION OF EXIGENCY

HBR2 is currently in coastdown in preparation for Cycle 12 refueling, scheduled to begin March 28, 1987. Efforts are currently underway on a 24-hour per day basis to complete repairs of DG "B". These repairs were started on March 9, 1987 and as discussed above will extend beyond March 16, 1987. On March 16, 1987, without this amendment request granted, HBR2 will have to proceed to hot shutdown. Therefore, at the current reduced boron concentration, shut down of the reactor to the hot shutdown condition with subsequent startup would result in the generation of at least 150,000 gallons of reactor coolant system waste water due to the dilution process. In addition, CP&L's electrical system load without HBR2 is projected at between 100 to 400 MW above system capability during the period which HBR2 would be shut down to complete the repairs. Therefore, license amendment is required to support continued operation until the repairs are complete.

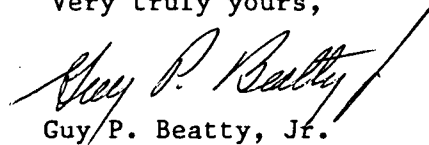
#### ADMINISTRATIVE

CP&L has evaluated this request in accordance with the provisions of 10CFR170.12 and determined an application fee is required. A check of \$150.00 as payment of the license amendment application fee will be sent separately.

In accordance with 10CFR50.91, CP&L will forward a copy of this request to the State of South Carolina.

If you have any questions concerning this request, please contact Mr. S. R. Zimmerman at (919) 836-6242.

Very truly yours,



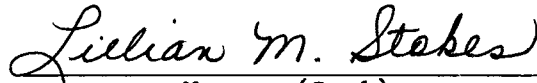
Guy P. Beatty, Jr.  
Vice President

Robinson Nuclear Project Department

DAS:ac/th

cc: J. N. Grace  
H. E. P. Krug

Guy P. Beatty, Jr. having been first duly sworn, did depose and say that the information contained herein 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.



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Notary (Seal)

My commission expires: 5/30/96