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SUBJECT: Forwards response to Generic Ltr 88-17, "Loss of DHR."

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
RESPONSE TO GENERIC LETTER 88-17, LOSS OF DECAY HEAT REMOVAL

Gentlemen:

Enclosed is Carolina Power & Light Company's (CP&L) follow-up response to Generic Letter 88-17 for the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2). Our initial response addressing the eight recommended expeditious actions, CP&L letter NLS-88-288, was submitted January 3, 1989. This response provides a description of the specific plans for implementation of the six programmed enhancement recommendations identified in the subject letter.

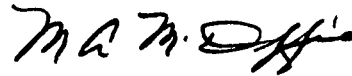
The Generic Letter was received approximately one week prior to entering the current refueling outage. Notwithstanding, HBR2 aggressively evaluated and implemented the expeditious actions concurrent with the refueling activities as demonstrated by the decision to revise the outage sequence to perform activities requiring reduced inventory condition while the core was off-loaded. As directed by the Generic Letter, the schedule for implementing the programmed enhancements is (1) by the end of the second refueling outage following the receipt of the letter for hardware modifications and enhancements that depend upon such, and (2) within 18 months following receipt of the letter for enhancements that do not depend upon hardware changes. Refueling Outage 13 is currently scheduled to commence in March of 1990. With this near coincidental timing for implementation, CP&L commits to full compliance prior to the end of Refueling Outage 13.

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Should you have any questions regarding this issue, please contact Mr. L. I. Loflin at (919) 836-6242.

Yours very truly,



M. A. McDuffie

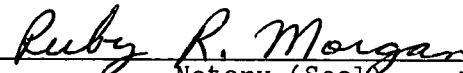
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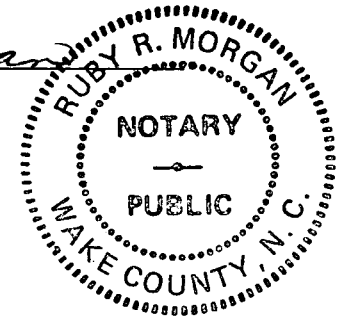
Enclosure

cc: Mr. M. L. Ernst
Mr. R. Lo
Mr. L. Garner (NRC - HBR)

M. A. McDuffie, 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.

My commission expires: 11/27/89


Notary (Seal)



bcc: Mr. H. R. Banks
Mr. R. K. Buckles (LIS)
Mr. R. M. Coats
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Mr. H. J. Young (RNP)
Mr. S. R. Zimmerman
Advanced Fuels, Inc. (T. Dresser)
File: RC/A-2
File: R-2-250

ENCLOSURE

Item 1 Instrumentation

- Action - Provide reliable indication of parameters that describe the state of the RCS and the performance of systems normally used to cool the RCS for both normal and accident conditions. At a minimum, provide the following in the CR:
- (a) two independent RCS level indications
 - (b) at least two independent temperature measurements representative of the core exit whenever the RV head is located on top of the RV. (We suggest that temperature indications be provided at all times.)
 - (c) the capability of continuously monitoring DHR system performance whenever a DHR system is being used for cooling the RCS
 - (d) visible and audible indications of abnormal conditions in temperature, level, and DHR system performance.
- Response - (a) A second independent RCS water level indication will be added on the RTGB. This will include installation of a second level transmitter that taps off of a drain line from "A" or "C" RCS loop. The current level transmitter taps off of an RCS loop "B" drain line. An alarm will be added in the control room for each level indicator.
- (b) As stated in our initial response, the HBR2 temperature-monitoring capability will be provided from the existing bottom-mounted Core Exit Thermocouple (CET) system. Although only two independent temperature indications are required, eight CETs (one per core quadrant per logic train) will be designated as those to be used immediately prior to and during reduced inventory operations. This arrangement provides assurance that at least two independent indications can be maintained to provide continuous temperature indication. The method to be used for providing temperature alarms is still being evaluated. Use of the Inadequate Core Cooling Monitor (ICCM) to provide these alarms is being considered since the CET is fed into the ICCM. If it is determined that providing temperature alarms is impracticable, HBR2 will monitor and log RCS temperature every 15 minutes during reduced inventory operation.

- (c) The existing RHR system performance indications include outlet temperature for each RHR heat exchanger and total system flow indication on the RTGB. A suction pressure indicator and associated low pressure alarm will be added to the RTGB for each RHR pump. The suction pressure indication in conjunction with the existing system indication will provide adequate continuous monitoring of the RHR system performance.
- (d) The control room annunciation system will be provided with alarms of abnormal conditions, i.e., RCS temperature, level and RHR performance indication as noted above.

Item 2 Procedures

- Action - Develop and implement procedures that cover reduced inventory operation and that provide an adequate basis for entry into a reduced inventory condition. These include:
- (a) procedures that cover normal operation of the NSSS, the containment, and supporting systems under conditions for which cooling would normally be provided by DHR systems.
 - (b) procedures that cover emergency, abnormal, off-normal, or the equivalent operation of the NSSS, the containment, and support systems if an off-normal condition occurs while operating under conditions for which cooling would normally be provided by DHR systems.
 - (c) administrative controls that support and supplement the procedures in Items (a), (b), and all other actions identified in this communication, as appropriate.
- Response - In our initial response, three procedures, which are now approved for use, were discussed which would govern reduced inventory operations. These procedures, will be sufficient in the interim. However, upon completion of the analyses described later and the modifications resulting from the programmed enhancements, the procedures will be revised as appropriate.

Item 3 Equipment

- Action - (a) Assure that adequate operating, operable, and/or available equipment of high reliability is provided for cooling the RCS and for avoiding a loss of RCS cooling.

- (b) Maintain sufficient existing equipment in an operable or available status so as to mitigate loss of DHR or loss of RCS inventory should they occur. This should include at least one high pressure injection pump and one other system. The water addition rate capable of being provided by each equipment item should be at least sufficient to keep the core covered.
- (c) Provide adequate equipment for personnel communications that involve activities related to the RCS or systems necessary to maintain the RCS in a stable and controlled condition.

- Response -
- (a) The equipment currently required to be operable during reduced inventory operations is incorporated procedurally as noted in Item 2 above. A periodic check sheet will be completed each shift while in a reduced inventory condition to ensure the operability of required equipment.
 - (b) As stated in our initial response, one safety injection pump and one charging pump are required to be operable during reduced inventory operation, in addition to the normal RHR equipment, to mitigate the loss of RHR or loss of RCS inventory should they occur. Calculations have shown that less than 60 gpm is required to keep the core covered. Each of the noted pumps are more than adequate to provide this flow rate.
 - (c) We believe existing communications (plant public address system, operations radio system, or telephone system during refueling outages) are currently adequate for all phases of reduced inventory operation. If, as a result of the ongoing evaluation, additional communications are determined necessary, existing communications will be augmented appropriately.

Item 4 Analysis

Action - Conduct analyses to supplement existing information and develop a basis for procedures, instrumentation installation and response, and equipment/NSSS interactions and response. The analyses should encompass thermodynamic and physical (configuration) states to which the hardware can be subjected and should provide sufficient depth that the basis is developed. Emphasis should be placed upon obtaining a complete understanding of NSSS behavior under nonpower operation.

Response - Analyses will be conducted to assure that an adequate basis exists for the reduced inventory operations encompassed by the procedures noted above, and for the instrumentation existing and being added, including settings for alarms and

NSSS interactions. HBR2 is participating in the WOG Operations Subcommittee study, MUHU-1106. Phases 2 and 3 of this project will address this item. A methodology similar to that used in the WOG development process for Emergency Response Guidelines is to be used. The analyses developed, in addition to the plant-specific analysis, will provide the basis documents for HBR2 procedures and modifications.

Item 5 Technical Specifications

- Action - Technical specifications (TSS) that restrict or limit the safety benefit of the actions identified in this letter should be identified and appropriate changes should be submitted.
- Response - The existing Technical Specifications have been reviewed and no changes are currently required. However, following completion of the supporting analyses for reduced inventory operations, another review will be performed based on the analysis results and any necessary changes will be submitted in accordance with the committed schedule.

Item 6 RCS Perturbations

- Action - Item (5) of the expeditious actions should be re-examined and operations refined as necessary to reasonably minimize the likelihood of loss of DHR.
- Response - As stated in our previous correspondence, procedurally addressing actions to preclude RCS perturbations can be complex in nature and must be carefully considered. CP&L is evaluating the need for these procedures and is reviewing what other utilities are doing in this area for possible application to HBR2. Any changes deemed appropriate will be added as necessary. Current procedures governing reduced inventory operations allow no perturbations of the RCS or support systems that are necessary to maintain the RCS in a stable condition.