CP&L

Carolina Power & Light Company

P. O. Box 1551 • Raleigh, N. C. 27602

JUL 15 1988

LYNN W. EURY
Senior Vice President
Operations Support

SERIAL: NLS-88-152
10CFR2.201
10CFR2.205

Mr. James Lieberman
Director, Office of Enforcement
U. S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
REPLY TO NOTICE OF VIOLATION AND ANSWER TO NOTICE OF VIOLATION
ENFORCEMENT ACTION 88-88

Dear Mr. Lieberman:

Pursuant to 10CFR2.201 and 10CFR2.205, please find Carolina Power & Light Company's (CP&L's) response to Dr. J. N. Grace's letter of June 15, 1988, which enclosed a Notice of Violation (NOV) and Proposed Imposition of Civil Penalty (EA88-88). The subject NOV is related to CP&L's compliance with the requirements of 10CFR50, Appendix K at the H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2). As directed in the NOV, CP&L's response is divided into two attached documents:

"Reply to a Notice of Violation," responding to the alleged violation, and

"Answer to a Notice of Violation," responding to the proposed civil penalty.

Carolina Power & Light Company is aware of the importance of proper evaluation of ECCS performance and is committed to resolving any issues associated with evaluations or performance of these systems. CP&L has taken prompt and proper actions when potential problems and issues associated with safe operation of the plant have arisen.

We have reviewed the issues raised by the NOV and our previous submittals of Appendix K evaluations, and we take exception to the violation as stated. We believe that the information contained in this letter and its attachments demonstrates that CP&L has complied with the requirements of 10CFR50.46 and 10CFR50, Appendix K as they relate to the H. B. Robinson Unit 2 design criteria described in the HBR2 Updated Final Safety Analysis Report (UFSAR). This information demonstrates that previously submitted



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analyses complied with the subject requirements as governed by Section 3.1 of the UFSAR, "Conformance with General Design Criteria." Additionally, the associated civil penalty should be mitigated considering CP&L's actions: shutting down the plant until preliminary analyses could establish that safe operation was possible up to 60 percent rated thermal power, and then operating the plant at 60 percent rated power until a final analysis could demonstrate compliance at 100 percent rated thermal power. Further, as demonstrated by the analysis submitted May 7, 1988, at no time was there a condition wherein a system designed to prevent or mitigate a serious event was not able to perform this function. In fact, the analysis showed that the acceptance criteria of 10CFR50, Appendix K were fully met even assuming the postulated single failures.

Should you desire further clarification of the attached information, we would appreciate the opportunity to meet with you.

Yours very truly,

L. W. Eury

JSK/mf

Attachments

cc: Dr. J. Nelson Grace
Mr. R. Lo
Mr. L. Garner (NRC - HBR)

L. W. Eury, 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.

Notary (Seal)

My Commission Expires: February 18, 1990.

ATTACHMENT 1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

OFFICE OF ENFORCEMENT

| | | |
|---|---|---|
| CAROLINA POWER & LIGHT COMPANY | ) | DOCKET NO. 50-261 |
| (H. B. Robinson Steam Electric Plant, | ) | LICENSE NO. DPR-23 |
| Unit 2) | ) | EA NO. 88-88 |
| | ) | |

REPLY TO A NOTICE OF VIOLATION

Pursuant to 10CFR2.201, Carolina Power & Light Company (CP&L) hereby responds to the Notice of Violation (NOV) issued on June 15, 1988, in the above-captioned enforcement action. The enclosed reply is provided in two parts: a response to the issues raised in the cover letter and the response to the NOV itself.

I. RESPONSE TO ISSUES RAISED IN NOTICE OF VIOLATION COVER LETTER

The thrust of the Nuclear Regulatory Commission's (NRC) Notice of Violation (NOV), as clarified by the NOV's cover letter, is that the combination of ECCS subsystems assumed to be operative in the evaluation model in the H. B. Robinson UFSAR did not reflect certain more damaging single failures of ECCS equipment, particularly the Safety Injection (SI) system. Carolina Power & Light Company believes that the analyses provided were within the scope outlined in Section 3.1 of the UFSAR, "Conformance with General Design Criteria," specifically Section 3.1.2.41, which requires that the Engineered Safety Features (ESF) perform their intended functions while accommodating the failure of any single active component. This single failure is assumed to occur separately, independently, or in addition to the initiating event. Also, the failure is assumed to be coincident or concurrent with the initiating event. As discussed later, the failure of a diesel generator was reviewed and universally accepted as the most damaging single active failure.

The HBR2 operating license was issued prior to the promulgation of 10CFR50.46 and 10CFR50, Appendix K. Consequently, the performance of the Appendix K calculations and the development of the evaluation model occurred after the original design basis was established and licensed. The model was developed by providing plant-specific input into the generic Westinghouse model, and the model was backfit into the scope of the original design basis relative to the definition of the single failure. The Appendix K model and analyses were submitted to the Atomic Energy Commission (AEC) in November, 1974, and the AEC issued the Order for Modification of License

on December 27, 1974. In a report, Status Report by the Directorate of Licensing in the Matter of Westinghouse Electric Company ECCS Evaluation Model Conformance to 10 CFR 50, Appendix K, which was appended to that order, the AEC said:

> "The staff has requested that Westinghouse conduct a complete sensitivity study to properly bound these 'minimizing' or 'maximizing' failures and that the worst combination possible with a single failure be utilized. History has shown that the single failure which was assumed to degrade the ECCS the most during the LOCA was a failure of a diesel subsequent to a loss of offsite power; however, the more recent studies by Westinghouse (see WCAP-8341, Section 17) have indicated that allowing offsite power to be available forces maximum containment cooling during the critical period immediately following the LOCA, thereby minimizing the containment backpressure. . . .
>
> Therefore, assumption of a single failure of a low pressure ECCS pump with offsite power available has been shown by Westinghouse to represent the worst-case single failure for large breaks. Since ECCS performance remains unaffected by containment backpressure for small breaks, the diesel failure continues to be the worst-case over the small-break spectrum."

Therefore, the single failures providing the basis for conformance to 10CFR50, Appendix K were a loss of one RHR pump for Large Break LOCA and loss of one diesel for Small Break LOCA. The order went on to say:

> "Although generic review of the most damaging single failure of ECCS equipment was conducted, the specific application of worst single failure criterion will be confirmed by the Regulatory staff on each future project. With each application, the staff will continue to examine the relevant plant piping and instrumentation diagrams to confirm that appropriate single failure assumptions have been made."

Issues relating to the emergency power system had been satisfactorily addressed in 1970 (Ref. 5/20/70 letter from Morris, AEC, to Colby, CP&L, forwarding 5/18/70 SER). As a result of these documents and the lack of any additional questions from the AEC, CP&L concluded that the original single failure scenarios, as accepted by the AEC, were appropriate.

In July, 1984, CP&L agreed to perform a new single active failure analysis as part of the Appendix K submittal for Technical Specification revisions associated with Cycle 10 operation. Once again CP&L reiterated that the original design basis was predicated on single active failures, and confirmed the events contained in Chapter 15 of the UFSAR. Again the NRC

confirmed the appropriateness of the single failure scenarios used for Appendix K analyses in the SER for License Amendment 87 (Ref. 11/7/84 letter from Requa, NRC, to Utley, CP&L):

> "Based on the Attachment II SER, we conclude that the LOCA analysis satisfies the requirements of 10CFR50.46 and that the evaluation model utilized satisfies the requirements of Appendix R (sic) to 10 CFR 50 and, therefore, is acceptable."

Also, the Attachment II (Safety Evaluation Report, H. B. Robinson Unit 2, Cycle 10, Reload Analysis - LOCA Analysis) lists the following assumption:

> "Single failure assumption of loss of one HPSI and one LPSI pump."

This single failure would result upon loss of one diesel coincident with the initiating event. In the evaluation of the assumptions, the SER states:

> "The single failure assumption utilized satisfies Appendix K, section D.1."

Carolina Power & Light Company believes that this history demonstrates that the analyses submitted in accordance with the requirements of 10CFR50.46 and Appendix K have reflected the most damaging single failures within the scope of the original design bases of the plant. Responses to the submittals associated with these analyses have implied that the NRC/AEC was in agreement with these assumptions.

II. RESPONSE TO ALLEGED SEVERITY LEVEL III VIOLATION

STATEMENT OF ALLEGED VIOLATION

The NRC's Notice of Violation states as follows:

"10 CFR 50.46 (a) (1) requires that emergency core cooling system (ECCS) cooling performance be calculated in accordance with an acceptable evaluation model.

"10 CFR Part 50, Appendix K sets forth standards for an acceptable model. Appendix K, Section D.1, "Single Failure Criterion" requires that in the accident evaluation the combination of ECCS subsystems assumed to be operative be those available after the most damaging single failure of ECCS equipment has taken place.

"Contrary to the above, as of January 29, 1988, the combination of ECCS subsystems assumed to be operative in the evaluation model in the H. B. Robinson Undated (sic) Safety Analysis Report (USAR) did not reflect certain more damaging single failures of ECCS equipment, particularly the Safety Injection (SI) System. Certain single failures could have rendered two of the three SI pumps inoperable while the H. B. Robinson USAR evaluation model assumed at most one SI pump being inoperable after the most damaging single failure. The four scenarios in which the SI safety function could have been lost only leaving one SI pump operable are (1) a single failure of the sequencer relay in the safeguard sequencing logic, (2) a single failure of the emergency diesel generator (EDG) field flash circuit after loss of off-site power and loss-of-coolant conditions, (3) a single failure of DC control power during safeguard sequencing, and (4) a single active failure in the EDG system controls.

"This is a Severity Level III violation (Supplement I).

"Civil Penalty - $50,000"

CP&L RESPONSE

1. Denial of Alleged Violation

Carolina Power & Light Company denies the alleged violation.

The General Design Criteria (GDC) in existence at the time H. B. Robinson, Unit 2 was licensed for operation (July, 1970) were contained in Proposed Appendix A to 10 CFR 50, "General Design Criteria for Nuclear Power Plants," published in the Federal Register on July 11, 1967. The final version of Appendix A to 10 CFR 50, effective in 1971 and subsequently amended, is somewhat different from the proposed 1967 criteria. The HBR2 criteria for "Engineered Safety Features Performance Capability" were contained in proposed GDC No. 41 which stated, "Engineered Safety Features, such as emergency core cooling system and the containment heat removal system, shall provide sufficient performance capability to accommodate the failure of any single active component without resulting

in undue risk to the health and safety of the public." The single failures that have been assumed for analysis purposes have been in accordance with this criteria as stated in the H. B. Robinson UFSAR Section 3.1.2.41, "Each engineered safety feature provides sufficient performance capability to accommodate any single failure of an active component..." Therefore, failures of batteries and wires breaking are failures of passive components which are outside the scope of the original design basis. As stated previously, a failure of one Emergency Diesel Generator was identified as the most limiting single active failure.

NRC alleges that the combination of ECCS subsystems assumed operable in the UFSAR were such that the evaluation model was unacceptable. However, on at least two previous occasions, NRC staff reviewed the evaluation model submitted by CP&L as required by 10 CFR 50.46, and in light of the plant design basis, stated that they found "the LOCA analysis satisfies the requirements of 10CFR50.46 and that the evaluation model utilized satisfies the requirements of Appendix R (sic) to 10 CFR 50 and is therefore acceptable." (Ref.: 11/7/84 letter Requa, NRC, to Utley, CP&L, issuing License Amendment No. 87.) Therefore, prior to January 28, 1988, the combination of ECCS subsystems assumed to be operative in the evaluation model in the H. B. Robinson UFSAR did reflect valid and acceptable single failures within the scope of the original design basis, and no violation of regulations occurred.

Carolina Power & Light Company acknowledges that the assumed new single failures, as presented at the enforcement conference and in the LER 88-003-00, did place the plant in an unanalyzed condition, and until such time as appropriate reviews were completed both by CP&L and NRC, the potential for an unreviewed safety question existed. CP&L took prudent and aggressive actions to assure that the health and safety of the public were not in danger, shutting the plant down for 43 days until a Technical Specification change could be approved that allowed the plant to return to 60 percent power. Subsequently, an additional analysis was submitted that verified that the acceptance criteria of 10CFR50, Appendix K were met even assuming these new single failures. This revised analysis showed that at no time had there been any hazard associated with the operation of the plant. After the NRC review and public comment period were completed, the potential for an unreviewed safety question no longer existed, and the plant was returned to 100 percent power after operating for 102 days at the reduced power level.

2. Reason for the Alleged Violation if Admitted

Not applicable.

3. Actions Taken and Results Achieved

Subsequent to discovering the subject single failures, CP&L shut down the plant pending further evaluation and analysis. Revised analyses in accordance with 10CFR50 Appendix K showed that even assuming a single failure that left only one safety injection pump capable of delivering flow to the core, the acceptance criteria of Appendix K were met. The

results of these analyses were submitted to the NRC on May 7, 1988, along with the appropriate revision to the facility Technical Specifications. On June 20, 1988, the NRC issued a license amendment incorporating the revised analyses.

4. Future Corrective Steps

Since no violation occurred, no additional actions are anticipated.

5. Date When Compliance Was Achieved

Because CP&L submits that no violation of 10 CFR 50.46 or 10 CFR 50, Appendix K occurred and that at no time was there any hazard to any member of the public, the Company has been and continues to be in compliance with this regulatory requirement.

UNITED STATES OF AMERICA
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| Unit 2) | ) | EA NO. 88-88 |
| | ) | |

ANSWER TO A NOTICE OF VIOLATION

Pursuant to 10 CFR 2.205, Carolina Power & Light Company (CP&L) hereby responds to the proposed imposition of civil penalty issued on June 15, 1988 in the above-captioned enforcement action. The staff has proposed a $50,000 civil penalty against CP&L for an alleged Severity Level III violation of 10 CFR 50.46 and 10 CFR 50, Appendix K.

As set forth below, CP&L urges the staff to mitigate in full the proposed civil penalty.

1. Denial of the Alleged Violation

For reasons set forth in the corresponding sections of CP&L's Reply to a Notice of Violation, incorporated by reference herein, CP&L denies that a violation of 10 CFR 50.46 and 10 CFR 50, Appendix K occurred as alleged. Accordingly, the proposed civil penalty should be withdrawn.

2. Extenuating Circumstances

Even if the NRC disagrees with CP&L's denial of the alleged violation of 10 CFR 50.46 and 10 CFR 50, Appendix K, CP&L submits that there are extenuating circumstances per 10 CFR 2, Appendix C, Section V.B. that justify mitigating in full the proposed civil penalty. First, CP&L promptly reported the single failures to NRC and ensured continued NRC involvement as new facts became available.

Secondly, CP&L took prompt and aggressive corrective actions, including shutting the plant down until such time as analyses could be completed to assure that ECCS performance met the acceptance criteria of 10 CFR 50, Appendix K. Consequently, H. B. Robinson Unit 2 remained shut down from January 28, 1988 to March 11, 1988 at which time the Unit was returned to service at 60 percent of the licensed thermal power level. The unit continued to operate at 60 percent until a final analysis could be performed, submitted to the NRC, and published in the Federal Register under the requirements of 10 CFR 50.91. After a complete and thorough review by NRC staff, a Technical Specification amendment was issued on June 20, 1988 to allow the unit to return to 100 percent of the licensed power level. It should be noted that the final analysis, as submitted to NRC and subsequently approved, demonstrated that at no time did a hazard to the public exist, even when only one SI pump would be operable to deliver flow to the core.

Finally, CP&L has demonstrated good performance in the past in providing analyses in accordance with 10CFR50.46, and has not previously been assessed any violation related to 10 CFR 50.46.

3. Other Reasons Why Civil Penalty Should Not Be Imposed

As we have previously discussed with Region II personnel, Carolina Power & Light Company has implemented a formal design basis reconstitution program that is aggressively pursuing the documentation of the current bases for H. B. Robinson Steam Electric Plant, Unit 2. This program, which was formalized as the result of the Safety System Functional Inspection (SSFI) findings, has been discussed with Region II on several occasions, and was the subject of a presentation to Region II on April 5, 1988. At that time, CP&L provided a scope and schedule for the full implementation of this program. CP&L is currently on schedule with this program, and it is our intent to continue to keep NRC informed as to the progress we are making.