

*Yellow  
Official*

DEC 16 1991

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Docket No. 50-261  
License No. DPR-23  
EA 91-142

Carolina Power and Light Company  
ATTN: Mr. Lynn W. Eury  
Executive Vice President  
Power Supply  
Post Office Box 1551  
Raleigh, North Carolina 27602

Gentlemen:

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY -  
\$37,500 (NRC INSPECTION REPORT NO. 50-261/91-20)

This refers to the Nuclear Regulatory Commission (NRC) inspection conducted by Mr. L. Garner on September 27 - October 11, 1991, at the H. B. Robinson Nuclear Plant. This inspection included an examination of the facts related to several recently identified examples of inadequate engineering design control and interfaces associated with modifications to the Safety Injection System and the Reactor Protection System. The report documenting this inspection was sent to you by letter dated October 25, 1991. As a result of this inspection, a violation of NRC requirements was identified. An enforcement conference was held on November 6, 1991, in the NRC Region II office to discuss the violation, its cause, and your corrective actions to preclude recurrence. A summary of this conference was sent to you by letter dated November 15, 1991.

The violation in the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) involved four examples which indicated significant inadequacies in engineering design control, as well as engineering interfaces and coordination with other organizations. Examples 1 through 3 in the enclosed Notice involved the development of revisions to the design basis analysis for the Safety Injection (SI) system. Specifically, your staff failed to properly analyze single SI pump operation during the time interval in which Emergency Core Cooling System (ECCS) is transferred from the injection mode to the recirculation mode following a loss of coolant accident (LOCA). Additionally, on separate occasions your staff failed to consider the effects of entrainment inventory loss during ECCS transfer and failed to evaluate the significance of entrainment inventory loss for a large break LOCA.

These examples reflect inadequate reviews and analyses, as well as inadequate management control and oversight. Such weaknesses resulted in the failure to perform an adequate analysis to support single SI pump operation in June 1988 when an amendment to Technical Specifications was submitted to the NRC to

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support this mode of operation; a subsequent inadequate design activity analysis (Nuclear Fuels Section Design Activity 89-0001) performed in January 1989; the use of an improper decay heat model on May 14, 1991, as a basis for power ascension; and a complete small break LOCA analysis not being performed because of an assumption that the large break LOCA analysis was more limiting.

Example 4 of the violation involved a problem with the time delay function in the Resistance Temperature Detector (RTD) system that was caused by capacitors not being removed from the Overtemperature Delta Temperature (OT Delta T) and Overpressure Delta Temperature (OP Delta T) Reactor Protection System (RPS) circuitry during the RTD Bypass Removal Modification (M-959) completed in February 1989. As a result, the OT Delta T protection circuitry response time exceeded that used in transient analyses by up to approximately two seconds. The vendor who prepared the modification failed to specifically include capacitor removal in the related modification guidelines and provide a post modification transient test of the associated circuitry. Your staff's engineering reviews performed on the modification guidelines, as well as subsequent modification development and reviews, failed to identify the fact that the capacitors needed to be removed. Reliance on the vendor work notwithstanding, the problem of inadequate engineering design control and interfaces is also evidenced by this example of the violation.

The above examples of identified inadequacies in engineering design control and interfaces, as well as their potential impact on the safe operation of plant systems are a significant safety concern. Therefore, in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy) 10 CFR Part 2, Appendix C (1991), this violation has been categorized at Severity Level III.

The NRC recognizes that three of these examples were identified by your staff and that prompt and appropriate corrective actions were taken, including unit shutdown for the OT Delta T capacitor issue.

To emphasize the importance of ensuring that engineering design control and interfaces are fully functional in all required aspects of design change review, I have been authorized, after consultation with the Director, Office of Enforcement, and the Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations and Research, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty in the amount of \$37,500 for the Severity Level III violation. The base value of a civil penalty for a Severity Level III violation is \$50,000.

The escalation and mitigation factors in the Enforcement Policy were considered and mitigation of the base civil penalty by 50 percent was warranted for identification and reporting because three of the examples cited in the violation were identified by your staff. Neither escalation nor mitigation was warranted for corrective action. While appropriate immediate actions, which included in one case bringing the unit to shutdown, were taken, they were offset by the lack of long-term corrective action such as the management control enhancements which you described at the enforcement conference that

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have yet to be fully effective. For example, during the enforcement conference, your staff discussed management efforts that have been ongoing for a couple of years to instill ownership of vendor products, reinforce responsibility for vendor designs, and ensure engineering work was assigned to staff members with appropriate training and expertise. However, despite such efforts, an improper decay heat model was used to justify operation at 95 percent power following the discovery of the improper ECCS analysis in May 1991. Neither escalation nor mitigation was warranted for past performance due to previous escalated enforcement action (EA 89-188) in November 1989 that involved the operation of the auxiliary feedwater system in a degraded condition. This previous enforcement action, which also involved the failure to identify and correct critical engineering issues, offset consideration for mitigation based on your more recent generally improving performance. Escalation of 25 percent was warranted for prior notice of similar events because the 1987 vendor analysis that addressed the entrainment phenomena should have alerted your staff to Example 2 of the Notice. The factor of multiple occurrences was used in categorizing this violation at Severity Level III. The other adjustment factors in the Enforcement Policy were considered and no further adjustment to the base civil penalty was considered appropriate. Therefore, based on the above, the base civil penalty has been decreased by 25 percent.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. In addition, during the enforcement conference it came to our attention that you may have assumed the availability of non-Technical Specification equipment to mitigate the consequences of accidents addressed in Chapter 15 of the Updated Final Safety Analysis Report. Consequently, as part of your response to this enforcement action, you are also requested to address any such assumptions that may have been made in Chapter 15 analyses. Following receipt of your response, should any additional information on this issue be necessary, it will be addressed separately from the enclosed enforcement action. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

The responses directed by this letter and the enclosed Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, Pub. L. No. 96.511.

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Should you have any questions concerning this letter, please contact us.

Sincerely,

**Original Signed By**  
**I. L. Milhoen**

Stewart D. Ebnetter  
Regional Administrator

Enclosure:  
Notice of Violation and Proposed  
Imposition of Civil Penalty

cc w/encl:  
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cc w/encl cont'd: (see next page)

Carolina Power and Light Company

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cc w/encl cont'd:

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