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SUBJECT: Responds to NRC 900226 ltr re violations noted in Insp Rept 50-400/90-01.

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R. B. RICHEY
Manager
Harris Nuclear Project

MAR 19 1990

Letter Number: HO-900050 (O)

Document Control Desk
United States Nuclear Regulatory Commission
Washington, DC 20555

NRC-704

SHEARON HARRIS NUCLEAR POWER PLANT
DOCKET NO. 50-400
LICENSE NO. NPF-63
REPLY TO A NOTICE OF VIOLATION

Gentlemen:

In reference to your letter of February 26, 1990, referring to I.E. Report RII: 50-400/90-01, the attached is Carolina Power and Light Company's reply to the violation identified in Enclosure 1.

It is considered that the corrective actions taken/planned are satisfactory for resolution of the item.

Thank you for your consideration in this matter.

Very truly yours,

R. B. Richey, Manager
Harris Nuclear Project

AJH:tbb

Enclosure

cc: Mr. R. A. Becker (NRC)
Mr. S. D. Ebneter (NRC - RII)
Mr. J. E. Tedrow (NRC - SHNPP)

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MEM/HO-9000500/1/OS1

ATTACHMENT TO CP&L LETTER OF RESPONSE TO
NRC I.E. REPORT RII: 50-400/90-01, VIOLATION

Reported Violation:

Technical Specification (TS) 3.3.1 requires the Reactor Trip System Instrumentation of Power Range, Neutron Flux, High and Low Setpoints, and the High Negative and Positive Rate Trips be operable in Modes 1 and 2. TS 2.2.1 requires the Reactor Trip System Instrumentation setpoints to be set consistent with the trip setpoint values shown in Table 2.2-1. Table 2.2-1, in part, lists the power range setpoints as shown below.

a.	High Setpoint	<=109% of Rated Thermal Power (RTP)
b.	Low Setpoint	<= 25% of RTP
c.	High Positive Rate	<= 5% of RTP
d.	High Negative Rate	<= 5% of RTP

TS 3.7.1 requires that the Power Range Neutron Flux High Setpoint be lowered to <=87% of RTP for an inoperable main steam safety valve.

Contrary to the above, at approximately 3:23 a.m. on December 20, 1989, when the plant entered Mode 2 with an inoperable main steam safety valve, until approximately 3:30 a.m. on December 23, 1989, when the power range instrument adjustments were completed, the Reactor Trip System Instrumentation setpoints were not set consistent with the trip values shown in Table 2.2-1 and TS 3.7.1. Actual established Reactor Trip setpoints were calculated to be the following for the Power Range Neutron Flux:

a.	High Setpoint	127.5% of Rated Thermal Power (RTP)
b.	Low Setpoint	37.5% of RTP
c.	High Positive Rate	7.5% of RTP
d.	High Negative Rate	7.5% of RTP

This is a Severity Level IV violation (Supplement I).

Denial or Admission:

The violation is admitted. The high setpoint was calculated at 125.5%, rather than 127.5%.

Reason for the Violation:

A low leakage core loading pattern was installed for cycle three operation to improve fuel efficiency. Although the vendor Nuclear Design and Operations Report identified a reduction in neutron leakage flux and provided recommended adjustments to the power range nuclear instrumentation (PR NIS) to compensate for this effect, these compensating adjustments were not made. Initial criticality and power operation up to 28.1% indicated reactor power (42.5% actual reactor power) occurred prior to the point when the first calorimetric heat balance was performed, on

December 23, 1989, at approximately 2:30 a.m. The PR NIS were adjusted at approximately 3:30 a.m. that morning.

The root cause was the lack of formal control over power ascension activities for refueling start ups, and insufficient management attention to the planning and implementation of power ascension. Testing requirements for power ascension were identified by the reactor engineering group and placed on the outage schedule. This schedule could be changed without appropriate management reviews and approvals. The test procedure (EPT-008) which would have provided the compensating adjustments to the PR NIS was on the schedule, but was subsequently removed, based on the belief by the reactor engineer that the intent of the procedure had been achieved by previous activities. Specifically, EPT-008 makes adjustments to the intermediate range instrumentation as well as the PR NIS. The intermediate range detectors had been relocated further away from the reactor core, and so required recalibration to compensate for the movement. This compensation had been previously determined and the instruments recalibrated, so when EPT-008 came due on the schedule, it was not performed.

The shift operations personnel did not detect the significant discrepancy between indicated reactor power from the PR NIS and other indications of power, especially the core delta temperature, which was providing an accurate indication of actual power level. Plant procedures did not require any monitoring of specific indications of power level, and comparison of diverse indications. The operators did note that the main generator load was higher than that which had previously been achieved for the indicated reactor power level, but this was attributed to efficiency improvements from modifications to the plant cooling tower made during the outage, and from the extreme cold weather which was experienced during the period. Training for cycle three operations did identify an expected reduction in the neutron flux leakage and the impact on the PR NIS, but this training had not emphasized the significance of the impact, and the training had been conducted several months prior to cycle three start up.

Following the incident, an evaluation was made to determine the safety significance. It was determined that the diverse trip features of the Reactor Protection System, specifically the overtemperature and overpower delta temperature reactor trips, provided protection for the core for the existing conditions at which the plant operated, and for power levels at which it was planned to operate prior to stabilizing to perform the calorimetric heat balance.

Corrective Actions Taken and Results Achieved:

The PR NIS was immediately adjusted to indicate the actual power level once the calorimetric heat balance indicated a miscalibration. All calibrations required by Technical Specifications for the PR NIS have been satisfactorily completed.

Briefings on the event and its significance have been conducted for plant management and supervisors, licensed operators, and reactor engineering personnel.

Further investigation of this event was conducted to evaluate human performance. An investigation by personnel not associated with the plant was also conducted.

Corrective Steps Taken to Avoid Further Violations:

A formal program to identify the cycle specific requirements of the Power Ascension Test Program is being developed and will be in place prior to the next refueling start up.

The plant start up procedure has been changed to require comparison of the PR NIS to other diverse indications of reactor power, and resolution of any gross discrepancies.

Additional training of technical staff and management personnel is planned, as well as changes, where appropriate, to licensed operator training and requalification training. Practices for scheduling cycle-specific training will be reviewed and revised as appropriate.

The test procedures for power ascension activities are being reviewed and will be revised as necessary prior to their next use.

Reference: LER 89-023-00