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## Carolina Power & Light Company

P. O. Box 1551 • Raleigh, N. C. 27602

## JUL 8 1988 .

SERIAL: NLS-88-161

M. A. McDUFFIE Senior Vice President Nuclear Generation

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

SHEARON HARRIS NUCLEAR POWER PLANT DOCKET NO. 50-400/LICENSE NO. NPF-63 RESPONSE TO NRC BULLETIN NO. 88-04

## Gentlemen:

Carolina Power & Light Company (CP&L) hereby submits the information for Shearon Harris Nuclear Power Plant (SHNPP) requested by NRC Bulletin No. 88-04, Potential Safety-Related Pump Loss. This bulletin identifies two miniflow design concerns: Pump-to-pump interaction with the potential to dead-head a pump during miniflow operation and adequate miniflow capacity during single-pump operation.

Pump-to-Pump Interaction During Miniflow Operation

The Boric Acid Transfer Pumps have a miniflow arrangement in which the common portion of the line begins upstream of a single orifice. The miniflow line capacity was verified to be between 8 and 12 GPM during Preoperational Testing. The minimum recommended flow for continuous operation is 5 GPM per current vendor recommendations. In addition, a bypass line is provided around this orifice which can pass a flow of approximately 125 GPM. This bypass line can easily support both pumps without potential for dead-heading of either pump. However, if the pumps were operated in parallel with the only aligned flow path being the miniflow line then one of the pumps may be dead-headed.

The operating procedure for the Boric Acid Transfer Pumps prevents simultaneous operation of both pumps without the bypass open. Thus, the potential for dead-heading is prevented by administrative requirements for system operation.

Review of Installed Miniflow Line Capacity ,

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The capacity of each miniflow line was verified to meet the minimum flow . requirements currently specified in the Technical Manual for each of these services. This verification utilized various sources and they included preoperational test data, design calculations, and surveillance testing, as applicable. A request was made to each of the pump vendors to review the current recommendations for acceptability. As of this date, not all of the vendors have responded to the request. The information supplied to date has been reviewed for potential problems. The only problem identified to date is that the Emergency Service Water (ESW) Booster Pumps have a miniflow capacity of approximately 1300 GPM which is less than the recently received vendor recommendation of 1800 GPM.

The impact of the discrepancy on ESW system operation was reviewed. It was determined that only one credible situation exits in which an ESW Booster Pump would be operated on miniflow only. This would occur following an accident if the ESW return valve to the Auxiliary Reservoir failed to open. In this situation, there would be no ESW flow to any systems inside the power block. From an accident analysis prespective, this single failure would affect only one ESW train and the other train would be fully capable of mitigating the accident consequences.

From a pump reliability perspective, the existing miniflow line would provide a flow of approximately 1300 GPM and no immediate failure concerns are apparent due to not having a flow of 1800 GPM. The reduced flow should affect only the long-term reliability of the pump if it were operated continuously at that flow.

## Follow-Up Actions

The following follow-up actions are planned in response to this bulletin:

- 1. The vendor recommendations not yet received will be reviewed upon receipt to ...determine if the installed miniflow lines have sufficient capacity.
- 2. The Boric Acid Transfer Pump operating procedures will be reviewed and additional administrative restrictions will be implemented, as appropriate, to further insure that both Boric Acid Pumps are not operated simultaneously with only the miniflow line in service.
- 3. The ESW Booster Pump miniflow-line capacity will be further reviewed to determine its adequacy. This evaluation will include engineering analysis and testing as necessary to verify adequacy or to determine what modifications are necessary to correct the problem.

A written report will be provided, as requested in the bulletin, within 30 days after completion of the above actions. Each of the above items is scheduled for completion during the 1988 Refueling Outage.

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

Yours very truly,

Mamie

M. A. McDuffie

MAM/DBB/mss (5430JSK)

cc: Mr. B. C. Buckley Dr. J. Nelson Grace Mr. G. F. Maxwell

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

R. MOD