CP&L
Carolina Power & Light Company
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P. O. Box 101, New Hill, N. C. 27562
January 29, 1985

Mr. James P. O'Reilly
United States Nuclear Regulatory Commission
Region II
101 Marietta Street, Northwest (Suite 2900)
Atlanta, Georgia 30323

NRC-318

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT
1986-900,000 KW - UNIT 1
SAFETY INJECTION (CHARGING) PUMP OPERATION
FOLLOWING A SECONDARY SIDE HIGH ENERGY LINE RUPTURE - ITEM 38

Dear Mr. O'Reilly:

Attached is our final report on the subject item which was deemed reportable per the provisions of 10CFR50.55(e) on July 7, 1980. With this report, Carolina Power & Light Company considers this matter closed.

If you have any questions regarding this matter, please do not hesitate to contact me.

Yours very truly,

R. M. Parsons
Project General Manager
Completion Assurance
Shearon Harris Nuclear Power Plant

RMP/rt

Attachment

cc: Messrs. G. Maxwell/R. Prevatte (NRC-SHNPP)
Mr. R. C. DeYoung (NRC)

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CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT

UNIT 1

FINAL REPORT

SAFETY INJECTION PUMP OPERATION FOLLOWING A SECONDARY SIDE HIGH ENERGY LINE RUPTURE ITEM 38

JANUARY 29, 1985

REPORTABLE UNDER 10CFR50.55(e)

SUBJECT: 10CFR50.55(e) Reportable Item
Shearon Harris Nuclear Power Plant
Potential Safety Injection Pump Damage

ITEM: Safety Injection Pumps for SHNPP Unit 1

SUPPLIED BY: Westinghouse Water Reactor Division (Pacific Pump Company, Subvendor)

NATURE OF DEFICIENCY: Following a secondary side high energy line rupture, the safety injection pumps will automatically come on line and inject cooling water into the reactor coolant system. However, if during a safety actuation incident (when the miniflow valves are closed) the reactor backpressure increase to the value below the safety valve set pressure but above the pump shutoff head, the high head safety injection pumps could reach a deadhead condition. There is a potential for the pumps to be damaged while operating in a deadhead condition.

DATE PROBLEM WAS CONFIRMED TO EXIST: Westinghouse Letter CQL-5888 dated May 22, 1980, received June 2, 1980.

PROBLEM REPORTED: Westinghouse Letter NS-TMA-2245 dated May 8, 1980 (T. Anderson to V. Stello) - 10CFR21 notification.

N. J. Chiangi notified the NRC that this item was potentially reportable under 10CFR50.55(e) on June 6, 1980.

N. J. Chiangi notified the NRC (J. Bryant) that this item was reportable under 10CFR50.55(e) on July 7, 1980.

N. J. Chiangi notified the NRC (J. P. O'Reilly) with an interim report on this item on December 23, 1981

R. M. Parsons notifed the NRC (J. P. O'Reilly) with an interim report on this item on June 1, 1983.

SCOPE OF PROBLEM: Three Unit 1 charging pumps.

SAFETY IMPLICATION: A potential to damage the high head safety injection pumps before the safety injection termination criteria is satisfied may adversely impact long-term recovery operations for the initiating event.

REASON PROBLEM IS REPORTABLE: The impact of long-term recovery could lead to a degraded safety condition.

CORRECTIVE ACTION: Appropriate design documents have been issued which provide alternate miniflow paths. These are made available to protect the two operable charging pumps whenever an engineered safeguards system actuation signal is present and the normal miniflow path is isolated. The alternate paths are placed in service by automatically opening a motor operated isolation valve in each of the two alternate miniflow lines. These normally closed isolation valves receive power from the same electric power train as the charging pumps with which they are associated. If the spare charging pump is to be made active, the electrical power supply can be manually transferred and the normal isolation valves realigned.

A relief valve is provided in each alternate miniflow path with a set pressure established to prevent the charging pump from reaching a deadhead condition. That is, if the reactor coolant pressure is too high to allow any operating charging pump to deliver flow through the injection lines, the relief valve will open to provide a path for the pump minimum required flow. The relief valves discharge to the refueling water storage tank through existing lines.

The reported design deficiency is considered corrected with the issuance of design documents for the modifications as discussed. This item is considered resolved.