



Carolina Power & Light Company

P.O. BOX 101, New Hill, NC 27562  
February 14, 1985

Dr. J. Nelson Grace  
United States Nuclear Regulatory Commission  
Region II  
101 Marietta Street, Northwest (Suite 2900)  
Atlanta, Georgia 30323

NRC-322

CAROLINA POWER & LIGHT COMPANY  
SHEARON HARRIS NUCLEAR POWER PLANT  
1986 - 900,000 KW - UNIT 1  
6.9 KV SWITCHGEAR CIRCUIT BREAKERS,  
ITEM 186

Dear Dr. Grace:

Attached is our final report on the subject item which was deemed reportable per the provisions of 10CFR50.55(e) and 10CFR, Part 21, on November 30, 1984. 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

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

SECONDARY DISCONNECT LUGS  
ANTI-PUMP RELAY JUMPER

ITEM 186

FEBRUARY 13, 1985

REPORTABLE UNDER 10CFR50.55(e) AND 10CFR21

SUBJECT:

Shearon Harris Nuclear Power Plant Unit No. 1  
10CFR50.55(e) and 10CFR Part 21 Reportable  
Deficiencies

1. Lugs on the secondary disconnect of circuit breakers are bent 90° or more upon installation. Many show signs of metal fatigue.
2. Internal wiring to the anti-pump relay in some instances rest on a rotating shaft of the charging spring motor. Failure of these leads could render the anti-pump relay inoperative.

ITEM:

6.9kV Switchgear Circuit Breakers

SUPPLIED BY:

Siemens-Allis, Inc., Sanford, North Carolina

NATURE OF

DEFICIENCIES:

1. The terminals on the secondary disconnects of the subject breakers are designed such that when straight lugs are installed they are bent approximately 90° to accommodate internal wiring exiting the side of the breakers and to clear the contact surfaces when the breakers are racked into cubicles. In some cases, this bend results in metal fatigue to the point of cracking the lug. Operation of the breaker could cause a cracked lug to break and result in breaker failure.
2. The location of the anti-pump relay within the breaker is above the rotating shaft of the spring charging motor. In certain instances, leads to the relay are in contact with the rotating shaft. Rotation of the shaft, in time, could wear through the lead insulation and result in a short circuit, causing the anti-pump relay to fail under a fault condition.

DATE PROBLEM

IDENTIFIED:

1. The secondary disconnect lug problem was first identified in a QA receipt inspection leading to the issuance of NCR-84-0573 (March 20, 1984). Though originally thought to be an isolated problem, further inspection by site and vendor personnel detected additional cracked lugs randomly among safety and non-safety related breakers. This item was identified by HPES on August 23, 1984.
2. The leads to the anti-pump relay resting on the rotating shaft within the circuit breaker were identified by Operations personnel on August 23, 1984.

DATE PROBLEM

REPORTED:

On September 7, 1984, CP&L (N. J. Chiangi) notified the NRC (Mr. A. Hardin) that the above items were potentially reportable under 10CFR50.55(e) and 10CFR, Part 21.

On November 30, 1984, CP&L (K. V. Hate') notified the NRC (Mr. D. Verrelli) that the above items were reportable under 10CFR50.55(e) and 10CFR, Part 21.

SCOPE OF

PROBLEM:

The two items outlined could occur in any of the safety and non-safety breakers supplied by Siemens-Allis under Ebasco Purchase Orders NY-435112 and NY-435113 (25 safety breakers and 57 non-safety breakers).

SAFETY

IMPLICATIONS:

1. Control and indication power for each 6.9kV circuit breaker is wired through the secondary disconnect. Broken lugs at the disconnect could cause problems, such as faulty indication of breaker condition; failure of breaker to trip; failure of breaker to reclose; or loss of control of the breaker preventing the breaker from performing its safety function.
2. A short in the jumpers to the anti-pump relay will result in failure of the relay. This may result in the breaker inadvertently opening and closing rapidly under fault conditions.

REASON

DEFICIENCIES

ARE

REPORTABLE:

The deficiencies are reportable because the switchgear breakers could be inoperable during a plant emergency condition and compromise safety system redundancy and adversely reduce the degree of protection to public health by contributing to the exceeding of reactor safety limits.

CORRECTIVE

ACTION:

Correction of the secondary disconnect lug and wiring harness problems on the (25) safety related breakers has been completed by the Siemens-Allis vendor representative.

Siemens-Allis has informed CP&L that the procedure used to correct the terminal lugs of the safety related breakers on-site will be followed on future orders of the same type breakers.