CP&L
Carolina Power & Light Company



P. O. Box 101, New Hill, N. C. 27562

December 12, 1984

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

NRC-302

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT
1986-900,000 KW - UNIT 1
ELECTRIC CABLES - HI-POT TEST FAILURE, ITEM 176

50-400

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 June 19, 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

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 NO. 1

FINAL REPORT

# ELECTRIC CABLES
# HI-POT TEST FAILURE

ITEM 176

DECEMBER 12, 1984

REPORTABLE UNDER 10CFR50.55(e)

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SUBJECT: Shearon Harris Nuclear Power Plant, Unit No. 1, 10CFR50.55(e) reportable deficiency. Single conductor power cables were damaged during installation but not detected by inspection and testing.

ITEM: Single conductor 600V. power cable

SUPPLIED BY: The Kerite Company, 49 Day Street, Seymour, Connecticut 06483

NATURE OF DEFICIENCY: Cables 11755A-SB and 11755B-SB were installed in accordance with documented design requirements, site installation procedures, and accepted based on inspection procedures. However, due to a low initial megger reading in one of the phases in each of the two (2) three-single conductor 500 MCM parallel feeder circuits, the cables were suspect and additional testing, not required by procedures or design documents, was performed. As a result of additional high-potential testing, cable damage was detected in both circuits.

DATE PROBLEM OCCURRED: May 10, 1984

DATE PROBLEM WAS REPORTED: On June 19, 1984, CP&L (Mr. K. V. Hate') notified the NRC (Mr. A. Hardin) that this item was reportable per the provisions of 10CFR50.55(e).

SCOPE OF PROBLEM: The scope of the problem, initially unknown, was found to be isolated to the two parallel feeder circuits, 11755A-SB and 11755B-SB, in which one of the three 1/C-500 MCM cables in each circuit was damaged. An investigation of the two failed cables showed that damage occurred at the same location in the raceway. We are confident the damage occurred during installation, but the exact cause could not be determined.

SAFETY IMPLICATION: If undetected damage occurred to safety-related cables, failure could occur resulting in a loss of power to safety-related equipment.

REASON DEFICIENCY IS REPORTABLE: This is a reportable deficiency since the possibility existed that safety related power cables which have been installed, inspected, and accepted in accordance with design requirements and site procedures could be damaged and fail when put in service.

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CORRECTIVE ACTION:

The two (2) parallel feeder circuits in which one of the three-single conductor 500 MCM cables was found damaged were replaced. Both circuits were satisfactorily meggered and high-potential tested following installation.

An effort was made to identify safety related single conductor 500 MCM power cables installed as of May 22, 1984. Additional high-potential testing approved by Harris Plant Engineering per FCR-E-2578 was then performed on these cables and the results were satisfactory. In addition to 500 MCM power cable testing, other safety and non-safety single conductor power cables installed as of May 22, 1984 were randomly selected and subjected to high-potential testing to confirm cable jacket/insulation integrity and were also found to be satisfactory.

PREVENTIVE MEASURES:

Construction Work Procedure WP-209, General Meggering and Hi-Potting Procedure for Equipment and Cable was revised on August 23, 1984 to incorporate a requirement that the Electrical Discipline Engineer be notified when installed cables exhibit low initial megger readings and/or when a difference of 300% or more in megger readings exists between conductors in a cable. The Electrical Discipline Engineer will be responsible for investigating the problem to determine the cause and provide an acceptable resolution.

Construction Work Procedure WP-210, Installation and Termination of Safety Related Wire and Cable was also revised on August 23, 1984 to incorporate that the Electrical Discipline Engineer, Electrical Superintendent, or Construction Inspector may request a megger or a high-potential test before cable removal from a reel to insure cable integrity prior to pulling.