CP&L

Carolina Power & Light Company

SHEARON HARRIS NUCLEAR PROJECT
P. O. BOX 165
New Hill, North Carolina 27562

APR 15 1986

File Number: SHF/10-13510
Letter Number: HO-860284(O)

NRC-438

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

CAROLINA POWER & LIGHT COMPANY
SHEARON HARRIS NUCLEAR POWER PLANT
1986 - 900,000 KW - Unit 1
7.5 KVA INVERTERS -
INSULATION BREAKDOWN, ITEM 191

Dear Dr. Grace:

Attached is our second interim report on the subject item, which was deemed reportable per the provisions of 10CFR50.55(e) and 10CFR, Part 21 on February 12, 1986. CP&L is pursuing this matter, and it is currently projected that corrective action and submission of the final report will be accomplished by July 11, 1986.

Thank you for your consideration in this matter.

Yours very truly,

R. A. Watson
Vice President
Harris Nuclear Project

RAW/ajj

Attachment

cc: Messrs. G. Maxwell (NRC-SHNPP)
J. M. Taylor (NRC)

IE27

CAROLINA POWER & LIGHT COMPANY

SHEARON HARRIS NUCLEAR POWER PLANT

UNIT 1

THIRD INTERIM REPORT

7.5 KVA INVERTERS - INSULATION BREAKDOWN

NCR 85-1420

ITEM 191

APRIL 10, 1986

REPORTABLE UNDER 10CFR 50.55 (e) AND 10CFR, PART 21

SUBJECT: Shearon Harris Nuclear Power Plant Unit Number 1, 10CFR 50.55(e) and 10CFR Part 21 reportable deficiency. Insulation breakdown on General Electric transformers supplied with Westinghouse 7.5 KVA Inverters.

ITEM: General Electric ferro-resonant transformers - Westinghouse Part Number 3485C38 H08

SUPPLIED BY: Westinghouse Electric Corporation

NATURE OF DEFICIENCY: General Electric ferro-resonant transformers as supplied on Westinghouse 7.5 KVA Inverters have experienced failures on some units due to a shorting between the coil and core of one of two reactors connected to the secondary of the ferro-resonant transformer. This failure has been attributed to vibration which resulted from insufficient securing of laminations making up the center leg of the G40 reactor core. Over a period of time the operation of the transformer results in failure of coil insulation due to this vibration.

DATE PROBLEM IDENTIFIED: Westinghouse notified CP&L in October 1984 of this potential problem.

DATE PROBLEM REPORTED: On October 29, 1984, Mr. N. J. Chiangi notified the NRC of a potentially reportable item under the provisions of 10CFR 50.55(e) and 10CFR, Part 21.

On February 12, 1986, Mr. N. J. Chiangi notified the NRC that this item was reportable per the provisions of 10CFR 50.55(e) and 10CFR, Part 21.

SCOPE OF PROBLEM: This deficiency involves four NIS Inverters (Channels I, II, III, & IV) and two Auxiliary Transfer Panel Inverters (SA and SB), for a total of six inverters.

SAFETY IMPLICATION: Failure of the ferro-resonant transformer results in a greatly reduced output which leads to a failure of the inverter output. Loss of inverter output results in a loss of the safety function of the loads fed by the inverter.

REASON DEFICIENCY IS REPORTABLE: Redundancy of safety systems will be compromised by a failure of one or more inverters. This could jeopardize the safety function of equipment powered from NIS Channels I, II, III, & IV, and the Auxiliary Transfer Panel.

CORRECTIVE ACTION: In order to determine that the inverters supplied for the Harris Plant are adequate to perform their function, the six Harris inverters will be subjected to a six month load test as recommended by Westinghouse. This load test will consist of connection of permanent loads and heaters as required to achieve a 20% minimum load at all times on the inverters. Completion of the load test will be regarded as demonstration that the inverter is free from the defect in construction of the ferro-resonant transformer.

FINAL REPORT:

The six month load test of the Channel I, II, III, & IV inverters was successfully completed on August 15, 1985. The six-month load test for the SA and SB inverters supplying power to the Auxiliary Transfer Panels was successfully completed on March 30, 1986.

On September 6, 1985 the Channel IV Inverter ferro-resonant transformer shorted to ground. An investigation has determined that this failure was a failure of the laminations in the center leg of the G40 reactor core. The ferro-resonant transformer for the Channel IV Inverter has been replaced with a spare transformer. The Channel IV Inverter is currently undergoing a load test which will be completed in July, 1986. This testing was necessitated by the transformer supplier's inability to guarantee that ferro-resonant transformers purchased as spare parts were not subject to the failures which resulted in the issuance of Westinghouse Technical Bulletin NSID-TB-84-11.

The final report for this item is pending successful completion of the six-month load test of the Channel IV Inverter. A final report is projected to be issued by July 11, 1986.