



Carolina Power & Light Company

March 19, 1982

File: SH N-2/18
Item 71

COAD-82-483

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

SHEARON HARRIS NUCLEAR POWER PLANT UNIT 1
DOCKET NO. 50-400
DEFICIENCIES IN WELDED STUDS ON EMBEDDED STRIP PLATES



Dear Mr. O'Reilly:

Attached is the final 10CFR50.55(e) report on the subject deficiency which describes the problem and the corrective action taken to accomplish resolution. 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.

RDB/mt
Attachment

Yours very truly,

cc: Mr. G. Maxwell W/A
Mr. V. Stelio (2) W/A


N. J. Chiangi - Manager
Engineering & Construction
Quality Assurance/Quality Control

OFFICIAL COPY

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SHEARON HARRIS NUCLEAR POWER PLANT

UNIT NO. 1

DEFICIENCIES IN WELDED STUDS ON EMBEDDED STRIP PLATES

Final Report

March 15, 1982

Reportable Under 10CFR50.55(e)

Prepared by: Carolina Power & Light Company

SUBJECT: 10CFR50.55(e) Reportable Item
Shearon Harris Nuclear Power Plant (SHNPP)
Embedded Strip Plates with Inadequate Welds on Studs

ITEMS: Embedded Strip Plates Received at Site January 18, 1982;
January 29, 1982; February 25, 1982.

SUPPLIED BY: Alfab, Inc.
P. O. Box 727
Enterprise, Alabama 36330

NATURE OF DEFECT: During receipt inspection, the studs on the strip plates were inspected. This inspection resulted in the conclusion that the shipments of embedded plate referenced above contained studs with inadequate weld connections to the plates.

DATE PROBLEM WAS
CONFIRMED TO EXIST: Upon investigation, it was determined February 17, 1982 that the strip plates could not fulfill their design function, with the studs not able to meet their design strength.

PROBLEM REPORTED: February 17, 1982 - CP&L (N. J. Chiangi) informed NRC Region II office (Mr. C. Julian) by telephone that the problem was "potentially reportable" under 10CFR21.

SCOPE OF PROBLEM: Three shipments of embedded strip plates were found to contain studs which would not pass the specified acceptance test (AWS D1.1). Details of the shipments are shown in the table below.

Embed Plate List

<u>Date Received</u>	<u>Total No. of Plates</u>	<u>No. of Rejected Plates</u>
1/18/82	443	1
1/29/82	1,001	59
2/25/82	470	1

SAFETY IMPLICATIONS: Strip plates are used to support any load (seismic, non-seismic, safety related or non-safety related) within the design envelope loads. These plates are not controlled in their use and any plate accepted for use can be used in any location where a strip plate is needed. Plates from the shipments containing faulty studs could have been used to carry loads required for Seismic Category I Safety-Related Equipment. According to the analysis performed plates with just one bad stud would have had minor over-stress when loaded to the envelope loads. Some loads less than envelope loads could be carried by the plates even with the faulty studs.

SAFETY IMPLICATIONS
(continued):

The application of envelope or near envelope loads to a plate with missing or faulty studs and to support safety-related loads would have resulted in permanent deformation of the strip plates, shifting of load and violation of seismic design criteria. However, the analysis of this condition is conservative. The more accurate analysis for this condition is a limiting or plastic analysis which has not been performed. In general, a plastic analysis results in indicating much less severe conditions and would probably have indicated that very little, if any, stress above ultimate strength would have been experienced.

REASON(s) PROBLEM
WAS REPORTABLE:

The strip plates cannot meet their original design criteria with inadequate studs. This condition is addressed in 10CFR50.55(e) and is a condition which "...were it to have remained uncorrected, could have affected adversely the safety of operations...and which represents:

- (iii) A significant deficiency in construction...which will require extensive evaluation,...or extensive repair to meet the criteria and bases stated in the Safety Analysis Report or construction permit...." (Quotation from 10CFR50.55(e).

CORRECTIVE ACTIONS:

All plates found to contain defective studs were returned to Alfab. Alfab performed a detailed inspection of the plates in the returned shipment and will upgrade the defective ones. The upgraded plates with studs will then be shipped back to CP&L.

The failing studs on the plates received 1/29/82 were investigated. Although nothing conclusive could be obtained from the investigation, it was thought that improper amperage was used during the welding of the studs to the plates.

On future shipments, the vendor will increase their testing frequency to ensure adequate welding.