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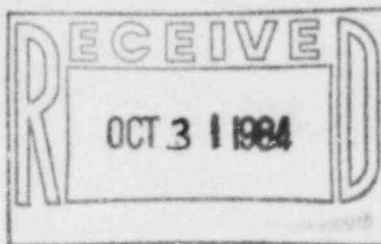
142 DELARONDE STREET • P.O. BOX 8008
NEW ORLEANS, LOUISIANA 70174-8008 • (504) 388-2345

MIDDLE SOUTH
UTILITIES SYSTEM

October 26, 1984

W3P84-2963
Q-3-A35.07.84
3-A1.01.04

Mr. John T. Collins
Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011



Dear Mr. Collins:

Subject: Waterford 3 SES
Docket No. 50-382
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 84
"Tube Track Welding Deficiencies"
Final Report

- References:
1. LP&L letter W3P84-2580 dated September 18, 1984.
 2. NRR letter dated June 13, 1984 from D.G. Eisenhut to J.M. Cain (LP&L).
 3. LP&L letter W3P84-2821 dated October 4, 1984.

Reference 1 reopened the subject deficiency because of ongoing efforts associated with resolution of issues in reference 2. By reference 3 we informed you that LP&L anticipated submittal of the final report on SCD-84 by October 31.

Our review of resolutions for the referenced issues against the previously submitted final report SCD-84 has been completed and no modifications are needed. Attached are two copies of the Final Report of SCD-84, Revision 1.

Very truly yours,

K.W. Cook
Nuclear Support & Licensing Manager

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PDR ADOCK 05000382
S PDR

KWC:GEW:sms

- cc: NRC, Director, Office of I&E (15 copies)
NRC, Director, Office of Management
G.W. Knighton, NRC-NRR
E.L. Blake
W.M. Stevenson
W.A. Cross
INPO (D.L. Gillispie)

IE-27/11

FINAL REPORT OF
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 84 REV. 1
"TUBE TRACK WELDING DEFICIENCY"

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e). It describes deficiencies in the welding of tube track used for the routing and support of the instrumentation lines in safety related systems.

To the best of our knowledge this deficiency has not been reported to the USNRC pursuant to 10CFR Part 21.

DESCRIPTION

During inspection of instrumentation tube track welding, the welds were found not to be in compliance with AWS D1.1 requirements. Further, the welding was performed in accordance with Mercury Welding Procedure WPS-B. This procedure requires 1) that full penetration welding be initiated with the use of a backing strap 2) a minimum material thickness of 3/16 inch and 3) the materials to be of ASME Section IX, QW-422 Group P-1.

The inspection found the welders were generally not using backing straps. Additionally, the track was twelve (12) gauge ASTM A-569 and A-570 material. The twelve (12) gauge track is .1046 inches thick which violates the WPS-B requirement of a minimum thickness of 3/16 inch. ASTM A-569 and A-570 materials are not classified as P-1 group materials by ASME. An indeterminate number of welds were performed using procedure WPS-B.

SAFETY IMPLICATIONS

The tube track supports the instrumentation tubing for safety related systems. The tubing leads to instruments that are required for plant parameter monitoring and safe shutdown of the plant. Engineering evaluations of these deficiencies has determined the installations, as found, will perform as required by design. Therefore, this deficiency will not adversely effect the safety of operations of the nuclear plant.

CORRECTIVE ACTION

In order to resolve this concern, reevaluations were performed by Ebasco Engineering to establish the maximum stress levels expected to exist at tube track welded connections. In addition, a tube track fitting was fabricated without a backing strap, and then subjected to a tension test which did not result in the failure of the weld. Subsequently, the fitting was sectioned and examined macroscopically. The examination results revealed the presence of a partial penetration weld, and a sharp notch. These results were evaluated by Ebasco Engineering, and were determined to be acceptable based on the anticipated stress levels and service conditions.

The evaluation took into consideration fatigue loads due to plant induced vibration especially in light of the sharp notch in the sample fitting. Thus, the welds made without backing straps are considered acceptable since partial penetration welds have been determined to be acceptable. The procedural violation involving P1 material classification and member thickness limitations are not considered detrimental to fabricating an acceptable weld for the intended service.

The Ebasco Engineering evaluation further established the acceptability of weld failing to meet the minimum AWS D1.1 quality requirements. The basis for acceptance of such conditions is the low stress level relative to the allowable stresses under maximum loading conditions. Calculated stress levels imposed on the weld were conservatively established, taking credit for only 50% of the specified weld length and assuming the design basis earthquake forces.

Concerns with respect to the indeterminate number of welds fabricated using Procedure WPS-B were resolved by taking credit for the extensive reinspections of tube track welds conducted by Ebasco QA during the Instrumentation QA Records Review Program.

The Ebasco Engineering evaluation results are now documented in the disposition to NCR 6159 Supplement No. 1.

Revisions to the B-430 series drawings will be tracked via SMR-84-557.

This is considered a final report.