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MIDDLE SOUTH UTILITIES SYSTEM

D. L. ASWELL
Vice President-Power Production

February 27, 1981

W3K81-0095
Q-3-A35.07.17

Mr. K. V. Seyfrit, Director, Region IV
U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012

SUBJECT: Waterford SES Unit 3
Docket No. 50-382
Interim Report of Significant Construction Deficiency No. 17
"Base Metal Defects in Main Steam and Feedwater Containment Penetration Anchors"

Reference: LP&L letter 14473 dated July 3, 1980

Dear Mr. Seyfrit:

As discussed with your Mr. R. C. Stewart on February 25, 1981 and in accordance with the requirements of 10CFR50.55(e), we are hereby providing two copies of an additional Interim Report of Significant Construction Deficiency No. 17, "Base Metal Defects in Main Steam and Feedwater Containment Penetration Anchors."

Very truly yours,

D. L. Aswell

DLA:LLB:ncd

cc: 1) Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
(with 15 copies of each report)

2) Director
Office of Management
Information and Program Control
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
(with 1 copy of report)

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LOUISIANA POWER & LIGHT COMPANY

WATERFORD SES UNIT NO. 3

Interim Report of
Significant Construction Deficiency No. 17

Base Metal Defects in Main Steam and Feedwater
Containment Penetration Anchors

Reviewed by _____ 2/24/81
R. J. Milhiser - Site Manager — Date

Reviewed by _____ 2/23/81
J. Wills - Project Superintendent — Date

Reviewed by _____ per Telecon with J. Hart 2-24-81
J. Hart - Project Licensing Engineer — Date

Reviewed by _____ 2-24-81
R. A. Hartnett - Q. A. Site Supervisor — Date

February 20, 1981

INTERIM REPORT
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 17
BASE METAL DEFECTS IN MAIN STEAM AND FEEDWATER
CONTAINMENT PENETRATION ANCHORS

INTRODUCTION

This report is submitted pursuant to 10 CFR 50.55(e). It describes deficiencies in the base metal of the plates in the Main Steam and Feedwater Anchors.

DESCRIPTION

Tompkins-Beckwith, the process piping installation contractor, has been attempting to weld 2-3/4" thick bearing lugs to the base and legs of the No. 1 and No. 2 Main Steam Penetration Anchors. Extensive cracking has occurred in the base plates. One of the lugs was ultrasonically tested and it appears that the crack may have propagated in the base metal along the entire length of the lug. Six lugs have been welded on the feedwater No. 3 penetration anchor and only minor visible cracking has been encountered. However, the base material specification ASME SA-36 is susceptible to lamellar tearing and there is concern that cracking below the surface may exist. To date, ultrasonic testing has not been performed on any of the No. 3 penetration anchor lugs. Currently, all work is stopped on these anchors and three nonconformances (W3-1718, W3-1723, W3-2083) have been generated to document the visible cracks. In some instances the base material has been previously repaired due to cracking discovered in the area of Peden (supplier) shop welds. Additionally, problems have been encountered concerning distortion of the lugs as they cool down. The lugs tend to bend away from the fluted head, thus eliminating full bearing contact.

SAFETY IMPLICATIONS

If this deficiency is left uncorrected, in the event of a pipe rupture, the anchors may not be adequate to withstand the application of the full loads generated. It is therefore possible for an anchor to fail, perhaps resulting in subsequent pipe ruptures. Thus, failure to correct this deficiency could invalidate assumptions made in the FSAR dealing with Pipe Rupture Analysis.

CORRECTIVE ACTION

Corrective Action being undertaken to correct the deficiencies is delineated below:

A. REPAIR OF EXISTING CRACKS:

1. Excavate the remaining base material cracks using grinding and arc gouging techniques. A minimum preheat of 250°F should be applied to the 3-inch thick material prior to any thermal gouging. Monitor all excavation operations using visual and magnetic particle examination techniques to identify unacceptable linear indications.

2. Removal of the cracks shall be confirmed by magnetic particle examination of the excavated area.

3. Following completion and acceptance of the excavated areas, the base material will be rewelded through deposition of E7018 electrode with a 300°F minimum preheat and interpass temperature. Welding should preferably be done on a continuous basis. However, if welding must be stopped, the weld is to be covered by sufficient insulating material to permit slow cooling. The weld and adjacent areas are to be visually examined for evidence of cracking prior to reestablishing preheat and resuming welding operations. Preheating and interpass temperatures shall be established and maintained to assure that the weld area and approximately 12 inches of adjacent base material on all sides are brought to a uniform temperature. Sufficient soaking time should be allowed so that the full plate thickness is brought to the preheat temperature.

4. Following completion of welding, the repair areas shall be insulated and permitted to cool slowly to ambient temperature. The repair shall then be examined by magnetic particle and ultrasonic examinations.

B. WELDING OF LUG AND STIFFENER JOINTS:

Reevaluation of the Main Steam and Feedwater Anchor loads performed by the Ebasco Mechanical Nuclear Department resulted in a reduction in the design loads used for the anchor lug and stiffener welds and reduction of weld sizes. Design changes utilizing a higher strength steel (from A441 to A588) for certain plate assemblies with special procurement requirements restricting the sulfur and carbon contents have been initiated. The welding procedure will be modified to incorporate welding techniques which will reduce restraint of the welded plates thereby precluding the possibility of lamellar tearing and also reduce distortion in the plates.

Corrective action will be completed on or before October 31, 1981, at which time the final report will be submitted.