MISSISSIPPI POWER & LIGHT COMPANY
Helping Build Mississippi
P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

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J. B. RICHARD
SENIOR VICE PRESIDENT - NUCLEAR

August 15, 1984

U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Suite 2900
Atlanta, Georgia 30323

Attention: Mr. J. P. O'Reilly, Regional Administrator

Dear Mr. O'Reilly:

SUBJECT: Grand Gulf Nuclear Station
Unit 2
Docket No. 50-417
License No. NPF-13
File 0260/15525/15526
PRD-81/29, Final Supplemental
Report, Unit 2 Temp Flex
Penetration Bellows Assemblies
AECM-84/2-0015

Reference: (1) AECM-81/226, 6/25/81
(2) AECM-81/385, 10/6/81
(3) AECM-83/2-0003, 3/31/83
(4) AECM-83/2-0006, 10/7/83

On May 29, 1981, Mississippi Power & Light Company notified Mr. V. Brownlee, of your office, of a Potentially Reportable Deficiency (PRD) at the Grand Gulf Nuclear Station (GGNS) construction site. The deficiency concerned incorrectly welded spokes on the bellows end sleeves of penetration assemblies manufactured by the Temp Flex Company of Compton, California.

This deficiency was determined by MP&L to be not reportable and was closed out for Unit 1 and Unit 2 in Inspection Report 50-416/81-50 and 50-417/81-22. However, on March 1, 1983, MP&L informed Mr. R. Butcher, of your office, that the PRD was being re-opened for Unit 2 to assure that the deficiency is adequately addressed.

Based on the results of our investigation, MP&L had determined that this deficiency was reportable under the provisions of 10CFR50.55(e) for Unit 2 and notified the NRC in Reference 4. The deficiency is not reportable under 10CFR21 for Unit 2 since the affected systems have not been turned over to MP&L.

All inspections and corrective actions have now been completed for Unit 2. Details are included in our attached Final Report.

Yours truly,

J. B. Richard

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ATTACHMENT
cc: See page 2

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cc: Mr. J. B. Richard
Mr. R. B. McGehee
Mr. Nicholas S. Reynolds, Esq.
Bishop, Liberman, Cook, Purcell & Reynolds
1200 Seventeenth Street, N. W.
Suite 700
Washington, D. C. 20036

Mr. Richard C. DeYoung, Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. B. Taylor
South Miss. Electric Power Association
P. O. Box 1589
Hattiesburg, MS 39401

FINAL SUPPLEMENTAL REPORT TO PRD-81/29

I. Description of the Deficiency

Penetration bellows assemblies manufactured by Temp Flex have exhibited cracked and broken welds at the junction between the shroud support spokes and the bellows end sleeves. Contrary to Temp Flex design drawing requirements, fillet welds were used by the supplier instead of full penetration welds.

This deficiency affects the Nuclear Boiler System (B21), Residual Heat Removal System (E12), Reactor Core Isolation Cooling System (E51), Reactor Water Cleanup System (G33) and the Fuel Pool Cooling and Cleanup System (G41). The five bellows assemblies contained in the Standby Liquid Control System (C41) do not have spokes; therefore, System C41 is not affected as was previously reported.

This deficiency is applicable to Unit 2 only, and does not apply to the NSSS supplier.

II. Analysis of Safety Implications

Subsequent Temp Flex calculations state that a 1/8" fillet weld, in lieu of a full penetration weld, will support the shroud during a design seismic event. Inspection results of the "as welded" condition indicate that certain spokes have undersized welds, i.e., less than 1/8". Failure of the welds to support the shroud could cause a puncture in the bellows convolution and breach the drywell pressure boundary.

Therefore, had the cited condition remained uncorrected, the deficiency could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant.

Our Constructor has determined that the deficiency could apply to nineteen (19) of the twenty-four (24) bellows assemblies supplied. Five (5) bellows assemblies in System C41 (Standby Liquid Control System) do not have spokes.

The inspection of all nineteen (19) bellows assemblies has been completed and all of the nonconformances noted have been identified, dispositioned, repair welded as necessary, and accepted on Nonconformance Report (NCR) 6535.

III. Corrective Actions

The cause of the deficiency was that the personnel performing the installation and inspection of the welds did not review the actual drawing requirements for weld preparation.

The extent is limited to nineteen (19) bellows supplied by our Architect/Engineer.

Since all the bellows supplied by Temp-Flex under Specification M318.0 have been delivered for Unit 2, no additional quality requirements can be imposed on the vendor at this time. Of the nineteen bellows in question, eleven (11) have since been installed and inspected with no additional damage incurred. As the remaining eight bellows are installed they will be monitored closely to assure proper handling and final inspections will be performed.