



MISSISSIPPI POWER & LIGHT COMPANY

Helping Build Mississippi

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

JAMES P. MCGAUGHY, JR.
ASSISTANT VICE PRESIDENT

November 13, 1981

Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, N.W.
Suite 3100
Atlanta, Georgia 30303

Attention: Mr. J. P. O'Reilly, Director

Dear Mr. O'Reilly:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416/417
File 0260/15525/15526
PRD-81/15, Interim Report No. 2,
Acid Damage to SSW Basin "B" Pumps
AECM-81/447

Reference: 1) AECM-81/123, 3/27/81
2) AECM-81/349, 9/9/81

On February 25, 1981, Mississippi Power & Light Company notified Mr. P. A. Taylor, of your office, of a Potentially Reportable Deficiency (PRD) at the Grand Gulf Nuclear Station (GGNS) construction site. The deficiency concerns acid damage to the pumps in Standby Service Water (SSW) Basin "B".

This PRD was originally initiated because of minor corrosion damage to the Unit 2 SSW "B" Pump (Q2P41C001B-B).

It has since been determined that the Unit 1 SSW "B" Pump (Q1P41C001B-B), the lube oil cooler coils for the Unit 1 SSW "B" Pump, and the Unit 2 HPCS Service Water Pump were also exposed to the highly acidic water. The Unit 1 SSW "B" Pump and the lube oil cooler coils for the Unit 1 SSW "B" Pump were damaged.

Mississippi Power & Light is currently conducting an inspection program to determine the extent of the damage. We have determined that the deficiency is reportable under 10CFR50.55(e). We are investigating its reportability under 10CFR21. We expect to submit a Final Report by December 31, 1981.

This Interim Report No. 2 was originally due on November 2, 1981, but a two week extension until November 16, 1981, was granted by Mr. P. A. Taylor.

Yours truly,

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J. P. McGaughy, Jr.
J. P. McGaughy, Jr. OFFICIAL COPY

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ATTACHMENT
cc: See page 2

Member Middle South Utilities System



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Mr. J. P. O'Reilly
NRC

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cc: Mr. N. L. Stampley
Mr. R. B. McGehee
Mr. T. B. Conner

Mr. Victor Stello, 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

INTERIM REPORT NO. 2 TO PRD-81/15I. Description of the Deficiency

There are two Standby Service Water (SSW) Basins for the GGNS. Basin "A" is south of Basin "B". Installed in Basin "A" are the Unit 1 HPCS Service Water Pump, one of the two Unit 1 SSW Pumps and one of the two Unit 2 SSW Pumps. Installed in Basin "B" are the Unit 2 HPCS Service Water Pump, the other Unit 1 SSW Pump (Q1P41C001B-B) and the other Unit 2 SSW Pump (Q2P41C001B-B).

Sulfuric acid was added to the "B" (SSW) basin on September 10, 1979, in an attempt to reduce the alkalinity of the basin water. The quantity of acid to be added was calculated utilizing incorrect information as to the quantity of water in the basin. This action caused the basin water to become highly acidic, exposing all three pumps to potentially highly corrosive water.

In an attempt to recirculate and reduce local concentrations of acid, the Unit 1 SSW "B" Pump (Q1P41C001B-B) was operated sporadically from September 12, 1979 to September 16, 1979. The Unit 2 SSW "B" Pump (Q2P41C001B-B) and the Unit 2 HPCS Service Water Pump were not operated during the excess acid condition. The basin water was reduced to an acceptable acid level on September 20, 1979.

The deficiency affects portions of the Standby Service Water System (P41) within the basin and pumphouse and is applicable to both Unit 1 and Unit 2.

Originally, only corrosion damage to the Unit 2 SSW "B" Pump was reported. We have determined subsequently that the Unit 1 SSW "B" Pump, and the lube oil cooler coils for the Unit 1 SSW "B" Pump and the HPCS Service Water Pump also were exposed to this water. The Unit 1 SSW "B" Pump and the lube oil cooler coils for the Unit 1 SSW "B" Pump were damaged.

If the Unit 1 SSW "B" Pump had not been repaired, failure of the pump could result in the loss of cooling water to Unit 1 SSW loop "B", which provides cooling water to the RHR Heat Exchanger and Standby Diesel Generator and would prevent these components from performing their safety functions, which are essential to the safety of plant operations.

Also, failure of the lube oil cooling coils to cool the lubricating oil to the thrust bearing on the motor, would result in failure of the Unit 1 SSW "B" Pump. This would result in the loss of cooling water to Unit 1 SSW loop "B" which provides cooling water to the RHR Heat Exchanger and Standby Diesel Generator.

Since it could have adversely affected the safety of operations of the nuclear power plant, this deficiency is reportable under the provisions of 10CFR50.55(e). We are investigating the reportability of the deficiency under 10CFR21.

II. Approach to Resolution of the Problem

The cause of the pump corrosion was the addition of more sulfuric acid than was required to the SSW "B" basin. The acid was added in an attempt to reduce the alkalinity.

At the time of the addition of the acid, the SSW basin level transmitters were not operable and construction of the acid addition system for the SSW basin was not complete. This resulted in large quantities of acid being dumped directly into the basin, resulting in poor mixing of the acid and water and causing a high concentration of acid in various areas of the basin. Only SSW basin "B" was affected.

All three of the pumps were disassembled, inspected, and repaired as necessary.

The Unit 1 SSW "B" Pump (Q1P41C001B-B) sustained extensive damage and was returned to the manufacturer, Goulds Pumps, Inc. for repair. The Unit 2 SSW "B" Pump (Q2P41C001B-B) and the HPCS Service Water Pump sustained minimal damage, which was corrected by minor repairs. The Unit 1 SSW "B" Pump lube oil cooler is to be replaced during the next planned SSW system outage prior to fuel load with a spare cooler. The original cooler will be disassembled and inspected to determine if the coils were damaged by the acid.

To preclude the recurrence of an excessive amount of acid being added to the basin again, the SSW basin level transmitters have been installed and are operable, providing a positive and accurate method for determining the quantity of water in the basins.

The acid addition system has been completed and is operable. This provides a controlled method of adding acid and insures proper mixing of acid and water, ensuring a uniform mixture throughout the basin. Also, plant procedure 08-S-03-14, Rev. 0, was issued on October 12, 1981. It is entitled, "Chemistry Procedure - Chemical Additions to Plant Systems - Safety Related." This procedure provides detailed direction for calculating (and documenting) the quantity of acid to be added (manual or automatic injection) to the SSW basins.

III. Status of Proposed Resolution

The analysis of safety implications has been completed. The cause of the deficiency has been identified, as have been the corrective actions. Our Constructor has determined that the piping and valves were not affected since the materials are either corrosion resistant in nature or are provided with sufficient corrosion allowance.

During the next planned outage, however, one valve and the adjacent piping which were exposed to the acid will be examined by Mississippi Power & Light for damage. This is an added measure in establishing a level of confidence as to the condition of these components.

IV. Reason Why A Final Report Will Be Delayed

Mississippi Power & Light has not examined the valves and piping with the basin drained. We also have not determined reportability of this deficiency under 10CFR21.

V. Date When A Final Report Will Be Submitted

We expect to submit a Final Report by December 31, 1981.