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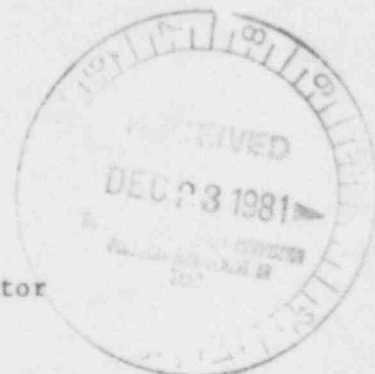
P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

JAMES P. McGAUGHY, JR.
ASSISTANT VICE PRESIDENT

December 15, 1981

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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, Regional Administrator

Dear Mr. O'Reilly:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416/417
File 0260/15525/15526
PRD-81/38, Final Report, Low Flow
HVAC Conditions
AECM-81/498

Reference: AECM-81/417, 10/22/81

On September 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 low flow HVAC conditions.

We have determined that had this deficiency remained uncorrected it would have adversely affected the safety of operations of the nuclear power plant and is reportable under the provisions of 10CFR50.55(e). The affected systems have not been offered for acceptance to MP&L so the deficiency is not reportable under 10CFR21.

All details are given in our attached Final Report.

Yours truly,

J. P. McGaughy, Jr.

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ATTACHMENT
cc: See page 2

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Mr. J. P. O'Reilly
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AECM-81/498
Page 2

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

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 REPORT FOR PRD-81/38

I. Description of the Deficiency

During HVAC flow balancing, a number of systems exhibited flow rates 20 to 40% below the designed flow rates. The deficiency was originally identified in the Emergency Switchgear and Battery Room Ventilation System (Z77). Another deficiency of the same magnitude was identified in the Control Room HVAC System (Z51). In our previous report it had been reported that the deficiency also affected the Radwaste Building HVAC (V41), Turbine Building HVAC (U41), Fuel Handling Area HVAC (T42), and Drywell Cooling (M51). These systems, however, are not safety-related and the deficiency would not affect the safe operation of the nuclear power plant.

Also, at the time of our previous report it was thought that the deficiency might possibly affect the Standby Gas Treatment System (T48). This system, however, has now been tested and has been shown to be not affected by the deficiency.

The deficiency affects only Unit 1 and does not apply to the NSSS vendor.

II. Analysis of Safety Implications

Our Architect/Engineer has determined that if the low flow condition had remained uncorrected, it could have prevented the equipment in the Emergency Switchgear and Battery Room and the Control Room from performing its intended safety function. Therefore, this deficiency is reportable under the provisions of 10CFR50.55(e). The affected systems have not been offered for acceptance to MP&L so this condition is not reportable under the provisions of 10CFR21.

III. Corrective Actions Taken

The low HVAC flow rates were primarily caused by undersized air handling equipment. Several factors contributed to this equipment being undersized.

Because of the extremely long lead times on qualified HVAC equipment, the supply and exhaust fans were sized approximately one and a half years before the duct design was issued for construction. Therefore, a static pressure requirement for the fans was based on preliminary designs and estimated on normal duct system requirements. Since the two systems affected were designed with complete redundancy, including the ductwork, large quantities of ductwork were installed which resulted in arduous ductwork runs that caused pressure drops in excess of those anticipated. The design was inadequately monitored and co-ordinated. Therefore, the specified fans were not capable of producing the static pressure actually required to maintain the design air flow.

A comparison between calculated system parameters and actual system parameters also indicates that extremely high air velocities existing through the supply air handling unit heating coils further degrade fan performance. However, installed conditions preclude determining the actual contribution of the high velocities to the overall lack of satisfactory fan performance.

The deficiency affects only the Emergency Switchgear and Battery Room Ventilation System (Z77) and the Control Room HVAC System (Z51).

In the Control Room HVAC System (Z51) the 40HP fan motors are to be replaced with 50HP fan motors and a set of intermediate speed sheaves will be added. The new motors are scheduled for delivery by December 15, 1981.

In the Emergency Switchgear and Battery Room Ventilation System (Z77) an additional supply fan and exhaust fan have been installed in each division. The system will now utilize two (2) full capacity fans run at half load in parallel to achieve acceptable design objectives.

Documentation has been revised to reflect the changes in each system.

To preclude recurrence, our Architect/Engineer's HVAC Design Personnel will be notified of any changes to the HVAC ductwork that are necessary during the installation. This will enable the Design Personnel to evaluate any ductwork changes in accordance with the original HVAC design criteria. Also, a review is being performed to establish criteria to be incorporated into a discipline guideline to be used specifically for ductwork and piping systems flow design. These guidelines shall include requirements to ensure that design evaluation is properly interfaced and monitored, and configuration changes of ductwork and piping be reviewed/evaluated periodically to identify and correct significant changes that may affect acceptance of the final (as built) design. These guidelines shall be issued by December 18, 1981, as a supplement to the existing discipline work assignments and standards of performance.

All corrective action will be completed by December 24, 1981.