



MISSISSIPPI POWER & LIGHT COMPANY

Helping Build Mississippi

P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

February 2, 1983

JAMES P. McGAUGHY, JR.
ASSISTANT VICE PRESIDENT

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
Unit 1
Docket No. 50-416
License No. NPF-13
File 0260/15525/15526
PRD-82/23, Final Report, Corroded
Terminal Boards
AECM-83/0062

Reference: AECM-82/226, 5/21/82
AECM-82/455, 8/6/82
AECM-82/478, 10/18/82
AECM-82/598, 12/15/82

On April 21, 1982, Mississippi Power & Light Company notified Mr. R. Butcher, of your office, of a Potentially Reportable Deficiency (PRD) at the Grand Gulf Nuclear Station (GGNS) construction site. The deficiency concerns corroded terminal boards on Rosemount pressure transmitters, flow transmitters and level transmitters utilized in safety related applications at GGNS.

As reported previously, MP&L determined that this condition is reportable under the provisions of 10CFR50.55(e) because the corroded terminal boards could cause erroneous signals or loss of signals from the transmitters and, therefore, could have affected adversely the safety of operations of the nuclear power plant. As the transmitters were not supplied with a defect the provisions of 10CFR50.55 are not applicable.

This report was originally due on January 28, 1983, but an extension was granted, on that day, by Mr. R. Butcher. All details are provided in our attached Final Report.

Yours truly,

J. P. McGaughy, Jr.
J. P. McGaughy, Jr.

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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. Richard C. DeYoung, Director
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U. S. Nuclear Regulatory Commission
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Mr. G. B. Taylor
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FINAL REPORT FOR PRD-82/23I. Description of the Deficiency

The terminal board areas of twenty-nine (29) Rosemount pressure transmitters, level transmitters and flow transmitters located inside the Unit 1 containment were found to be corroded. The terminal boards are located in a cavity underneath a threaded cap which is sealed to the transmitter unit by thread contact and an "O" ring. Each terminal board cavity communicates with a junction box through a sealed conduit.

The deficiency affects the Nuclear Boiler Instrumentation System (B21), Reactor Recirculation (B33), Feedwater Control (C34), Reactor Protection System (C71), Residual Heat Removal (E12), Leak Detection (E31) and the Main Steam Isolation Valve (MSIV) Leakage Control System (E32).

Further investigation has revealed that this deficiency applies only to Rosemount transmitters installed in Unit 1 in the NSSS scope of supply.

A final report from an independent laboratory which analyzed a corroded terminal board attributes the corrosion to the presence of moisture in the terminal board compartment.

II. Approach to Resolution of the Problem

An in-depth field investigation was conducted by plant staff to locate the source of moisture. It was discovered that two drain valves, 1P44-F803 and 1P44-F804, above the panels containing the transmitters, have been used quite extensively. There is a wide rust stain on the wall indicating that leakage from the drain valves drained onto and then into the junction boxes by following along conduits and instrument lines. The presence of moisture in the terminal board compartments of the transmitters is attributed to water entering the junction boxes and then the transmitters via the interconnecting conduit between the transmitters and the junction box.

The affected transmitters are located inside containment and are required to be operable during and after a Loss of Coolant Accident or a seismic event. The corroded terminal boards could cause erroneous signals or loss of signals from the transmitters. This could adversely affect the safety of operations of the nuclear power plant and is reportable under the provisions of 10CFR50.55(e).

III. Corrective Actions Taken

Maintenance Work Orders were initiated to restore the affected transmitters to their original design criteria. The affected transmitters have been restored to their original design criteria.

The leakage from the two (2) valves mentioned above has ceased and the wall and junction boxes were observed to be dry. MWO M2D178 which has been written to install pipe caps on the drain lines to prevent further leakage is expected to be completed by June 1, 1983.

All safety related transmitters required for safe shutdown, in containment, have been environmentally sealed in accordance with NUREG-0588 requirements. Sealing of the transmitters will prevent entry of moisture via the conduit and prevent recurrence of corrosion in any safety related transmitter required for safe shutdown.