

Victor Stello



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

JAMES P. McGAUGHY, JR.
ASSISTANT VICE PRESIDENT

May 19, 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-80/05, Final Report, Cable
Damage During Rope Pulling
AECM-81/172

On March 13, 1980, Mississippi Power & Light Company notified Mr. F. Cantrell, of your office, of a Potentially Reportable Deficiency (PRD) at the Grand Gulf Nuclear Station (GGNS) construction site. The deficiency concerns rope burn damage to cables in conduit. This deficiency was previously determined reportable under 10CFR50.55(e) in our letter to you dated February 20, 1981. This deficiency is not reportable under 10CFR21 as these cables had not been turned over to MP&L.

During investigation into this deficiency, it was noted that the insulation and/or jacket on some of the cables had been nicked or cut, etc. apparently during installation. This damage appeared to be minor, but will be investigated to determine if it could adversely affect the performance of the cables or the safe operation of the nuclear power plant over its lifetime. The decision was made to confine PRD-80/05 only to the damage caused by rope burns and to initiate another investigation into other types of construction damage. This deficiency will be addressed as PRD-81/25. This letter will serve to notify you of this PRD. We expect to complete our final report on PRD-81/25, Construction Damage to Cables, by November 15, 1981.

Attached is our final report on PRD-80/05, Cable Damage During Rope Pulling.

Yours truly,

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

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Mr. J. P. O'Reilly
NRC

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KDS:mt
Attachment

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

FINAL REPORT FOR PRD-80/05

I. Description of the Deficiency

Cable damage was sustained during the cable pulling process. Two constructor Nonconformance Reports (NCRs) have documented this condition in three noted cases of cable damage. In both cases, the damaged cables are associated with Z51, the Control Room HVAC System. The condition originally was noted when all cables were removed from two conduits to allow the pulling of an additional cable into that conduit. The initial findings have indicated that the cables were damaged by the polypropylene pulling rope. The nature of damage ranges from jacket chafing to insulation cut through to the conductor.

This deficiency is applicable only to Unit 1. The deficiency does not apply to the NSSS supplier.

To determine the extent of the damage, our constructor undertook an extensive and comprehensive testing program. The total number of safety related conduits was reviewed. Conduits with a very small probability of installation damage to the cables were not included in the evaluation.

A total of 277 conduits susceptible to rope burn damage to the cables were analyzed. Forty seven (47) of these conduits had the cables removed and visually inspected. Four (4) of these cables were found to have rope burn damage.

The physical parameters of the remaining 230 conduits were analyzed as to potential for installation damage to the cables. Twenty (20) "worst case" conduits were selected. These conduits were filled with Poly Water and the cables were High Potential tested. Of a total of 141 cables in these conduits, eleven (11) failed the High Potential test. Three (3) of the cables failed the test because of rope burn damage. The other test failures were due to other causes.

A second group of twenty (20) "worst case" conduits was then selected. The same testing procedure that was performed on the first group was then performed on this group. No cables failed the High Potential test because of rope burn damage. Since all remaining conduits have physical configurations which have less potential for damage than the tested conduits, our constructor assumed that all damaged cables had been located and that no further testing was necessary.

A total of ten (10) cables with rope burn damage were identified. These cables apply to numerous systems. At least eight (8) other cables failed the High Potential test because of known construction damage or because of unknown causes.

The cause of the deficiency was the cable installation process which used a polypropylene pull rope to pull in "new" cables over existing cables already in a conduit.

II. Analysis of Safety Implications

Because of the generic implications of the deficiency, and because of its applicability to numerous systems, it has been determined that this condition, had it gone undetected, could have adversely affected the safety of operations over the lifetime of the plant, and as such, is reportable under 10CFR50.55(e).

The cables had not been turned over to MP&L for acceptance, so this condition is not reportable under 10CFR21.

III. Corrective Actions Taken

All identified cables damaged due to rope burn have been replaced.

To preclude recurrence of this deficiency, the Project Field Engineer issued an Information Bulletin modifying cable installation practices. A training session was conducted for responsible Field Engineers to identify the problem and to provide instructions for the modified pulling practices. This bulletin precludes the use of polypropylene pulling rope.