



# Entergy Operations

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Vice President  
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U.S. Nuclear Regulatory Commission  
Mail Station P1-137  
Washington, D.C. 20555

Attention: Document Control Desk

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station  
Unit 1  
Docket No. 50-416  
License No. NPF-29  
Report No. 50-416/90-15,  
dated September 6, 1990  
(MAEC-90/0226)  
AECM-90/0179

Entergy Operations, Inc. hereby submits the response to Notice of Violation 50-416/90-15-02.

This violation has served to emphasize the need to fully pursue the identification of root causes of seemingly minor equipment failures. We intend to apply the lessons learned in this instance to future such occurrences.

Yours truly,

WTC/JS:cg  
Attachment

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## Reply To Notice Of Violation 90-15-02

10CFR 50, Appendix B, Criteria XVI, requires that measures shall be established to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, and defective material and equipment are promptly identified and corrected.

Contrary to the above, on April 29, 1989, the licensee failed to take adequate corrective action when they identified a control power fuse failure problem with the inboard MSIV leakage control subsystem A, an ESF system. The fuse failure made subsystem A inoperable on a MSIV fast closure. The fuse failure was repeated on December 31, 1989 and July 27, 1990. The fuse problem was corrected on July 29, 1990.

**I. The Reason For The Violation If Admitted**

**Background:**

On April 29, 1989, fuse E32A-F02 blew when valve Q1B21F022A was fast stroked closed during the Main Steam Isolation Valve (MSIV) Operability Test. The fuse was replaced. A Maintenance Work Order (MWO) was initiated and a deficiency sticker was placed on the panel to alert operators of the blown fuse. The MWO was assigned a priority three (i.e., scheduled and coordinated around plant operating constraints,) with the comment that the fuse had been replaced. Since the plant was in operation at the time, no actions could be taken on the MWO because it would require a drywell entry to continue the investigation. With the MSIVs open and the fuse replaced, operators presumed the problem had been corrected.

Following the Loss of Service Water Scram on December 30, 1989, the post trip report alarm typer results showed no evidence of fuse E32A-F02 blowing following closure of valve F022A. However, during the MSIV Operability Test performed during restart, fuse F02 blew when valve F022A was fast stroked closed. Fuse F02 was again replaced and the surveillance satisfactorily completed.

On July 27, 1990, following the "B" Feed Pump Controller Scram, a power failure alarm was received. Fuse F02 blew when valve F022A was fast stroked closed during the MSIV Operability Test. The Shift Superintendent requested a continuity test be performed on the fuse. Fuse F02 was replaced and the surveillance satisfactorily completed. While investigating the blown fuse, valve F022A was reclosed and fuse F02 blew again. The MSIV Leakage Control System "A" was declared out-of-service and a Limiting Condition for Operation entered until further investigation into the incident could be conducted.



**Reason For The Violation:**

The fuse failure identified on April 29, 1989 and the subsequent failure on December 30, 1989 were not adequately pursued by operations personnel due to insufficient guidance. A thorough investigation into the initial event at that time would have revealed the nature of the failure and led to more effective corrective actions.

**II. The Corrective Steps Which Have Been Taken And The Results Achieved**

An investigation was conducted to determine the cause of the blown fuses. Results revealed that a wire located near a reducing nipple from valve B21-F022A limit switch sustained a nick in the insulation. The exposed wire grounded against the conduit causing the fuse to blow. It was concluded that intermittent failure conditions could have existed whenever maintenance activities, normal vibration resulting from closure of valve F022A, or an "A" Line SRV lift would occur, at which time the fuse would have been replaced.

The nick appeared to have been caused during normal maintenance activities, i.e., limit switch changeouts, etc., or during installation at initial construction. The insulation was repaired and the system tested and subsequently restored to service.

Additional actions were taken which included:

- A review of outstanding Maintenance Work Orders to determine if proper prioritization had been assigned for Technical Specifications related equipment and components. Results indicated no other instances of this nature existed.
- Procedure 02-S-01-5, "Shift Logs and Records", was changed to require control power fuses and fuse replacements be recorded in the Control Room Operator Log Book. This action will ensure future documentation of the occurrence and proper turnover to shift personnel.
- A memo was issued by the Operations Superintendent instructing each Senior Reactor Operator (SRO) to perform a more thorough investigation into the potential cause of blown fuses which will include a review of existing plant conditions and the applicable electrical schematic. This will ensure an established method for identification, tracking, and repair of future fuse failures.

**III. The Corrective Steps Which Will Be Taken To Avoid Further Violation**

Entergy Operations, Inc. considers the specific actions described above adequate to preclude similar violations.

Several plant initiatives have also been implemented to address identification of root causes of equipment related problems. Among these are detailed training courses on root cause analysis for plant personnel.

**IV. Date When Full Compliance Will Be Achieved**

Full compliance has been achieved.