



JOHN G. CESARE, JR.  
Director  
Nuclear Licensing

May 4, 1989

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  
Special Report 89-003/0  
Emergency Diesel Generator  
13 Failure  
AECM-89/0089

On April 4, 1989 at 1618 operators started Diesel Generator 13 for performance of the monthly functional surveillance. The test was intended to verify system operability following planned maintenance. The plant was in a refueling outage and Diesel Generator 13 was not required to be operable.

The diesel generator successfully started and operated unloaded for approximately 24 minutes. After loading the generator, operators observed fluctuations of approximately 10 to 15 percent in exciter volts, exciter amps, and a resultant fluctuation in line MVARs. Operators terminated the test and secured the diesel generator for a maintenance investigation.

The cause of the condition was determined to be high resistance across a set of normally closed contacts, S1 to S2, on relay K2. This high resistance was the result of oxidation of the contacts. The K2 relay is in the circuit which provides output voltage feedback to the voltage regulator. The condition caused the sensing circuit to act erratically, sending an erratic signal to the voltage regulator. After the contacts were cleaned, the diesel generator test was successfully completed. An instruction will be developed to periodically measure the resistance across these contacts for early detection of oxidation, allowing the contacts to be cleaned prior to recurrence of this condition. This instruction will be issued by July 14, 1989.

SERI considers the test to be a valid failure pursuant to Position C.2.e(6) of Regulatory Guide 1.108 since the ability of the diesel generator in this condition to power ESF loads in response to a bonafide signal is indeterminant. This was the first valid failure in the last 20 valid tests and the second in the last 100 valid tests. Therefore, the testing frequency remained at once per 31 days in accordance with the test schedule of Technical Specification 4.8.1.1.2-1.

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P. O. BOX 23070 | JACKSON, MISSISSIPPI 39225-3070 | (601) 984-9210  
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After successful completion of the monthly surveillance test, operators started Diesel Generator 13 again on April 6, 1989 for performance of the eighteen month functional surveillance. The diesel generator tripped on a high crankcase pressure signal approximately one minute after starting. The cause of the trip was determined to be a faulty crankcase pressure switch. The switch was replaced and a valid successful test was performed. The eighteen month functional surveillance was completed on April 8, 1989.

In accordance with Position C.2.e(2) of Regulatory Guide 1.108, this trip is not considered a valid test or failure since the high crankcase pressure trip is bypassed in the emergency operating mode. Therefore, the testing frequency remains at once per 31 days.

Yours truly,

JGC:mcg

cc: Mr. W. T. Cottle  
Mr. T. H. Cloninger  
Mr. R. B. McGehee  
Mr. N. S. Reynolds  
Mr. H. L. Thomas  
Mr. H. O. Christensen

Mr. Stewart D. Ebnetter  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region II  
101 Marietta St., N.W., Suite 2900  
Atlanta, Georgia 30323

Mr. L. L. Kintner, Project Manager  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Mail Stop 14B20  
Washington, D.C. 20555