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Hope Creek Operations

MAY 23 1996

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U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Dear Sir:

HOPE CREEK GENERATING STATION
DOCKET NO. 50-354
UNIT NO. 1
SPECIAL REPORT 95-04, SUPPLEMENT 1

This Special Report supplement is being submitted to provide additional information regarding an invalid test failure that occurred on the "D" Emergency Diesel Generator (EDG) failure on September 30, 1995. It also corrects the Special Report number from 95-02 to 95-04.

The original Special Report was submitted pursuant to the requirements of Hope Creek Technical Specification 4.8.1.1.3, due to "D" EDG failure on September 29, 1995. This Special Report also discusses several EDG starts that were initially considered to be failures due to a misunderstanding of the acceptance criteria, but subsequently have been determined to be successful starts. This Special Report also discusses an unsuccessful start that has been attributed to an operating error.

A recent Technical Specification change (Amendment 72) allowed the performance of the 18 month, 24 hour endurance run to be performed in any Operational Condition. On September 29, 1995, the "D" EDG was started, timed for frequency and voltage, and loaded. Several hours into the performance of the "D" EDG 18 month surveillance test, a minor load swing was observed. This load swing became more pronounced, and the "D" EDG was declared inoperable. This valid failure is the fourth failure in the last 100 valid starts. The current test frequency is monthly. This is in accordance with the guidance provided in Technical Specification Table 4.8.1.1.2-1.

It has been determined that this incident is similar to an incident that occurred at the Catawba Nuclear Power Station earlier in 1995. This incident is described in INPO OE 7208, and was under review by the System Manager at the time of this incident.

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The incident has been attributed to potentiometers associated with the electronic governor. Oxidation and/or corrosion built up on the potentiometers, which caused the oscillations. The potentiometers were stroked, as recommended by the vendor, and the next surveillance run was performed satisfactorily. The potentiometers associated with the other EDG electronic governors were stroked during maintenance as a preventative measure.

On September 30, 1995, the "D" EDG was started and synchronized for a maintenance run. Approximately 5 hours, 20 minutes into the run, the EDG tripped due to generator differential current protection. The cause of this trip was determined to be a failed Silicone Control Rectifier (SCR) selector switch. The switch was removed from the voltage regulator/exciter panel. It was replaced with jumpers via a temporary modification because there were no available replacement switches.

On September 22, 1995, the "B" EDG was declared inoperable. The monthly EDG Technical Specification Surveillance Test Procedure had been revised to address an issue that was thought to have been overlooked during previous surveillance tests. A portion of Technical Specification 4.8.1.1.2 requires that "the generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after receipt of the start signal."

The previous testing method terminated the stop-watch timed start evolution when the EDG frequency and voltage first entered the acceptable ranges. However, EDGs exhibit a common phenomenon referred to as frequency overshoot. Overshoot is the time that the frequency is above the upper acceptance band. After the overshoot, the frequency may undershoot by continuing below the lower acceptance value prior to settling into the acceptance band. Prior to the test conducted on September 22, 1995, the surveillance test procedure was revised to require that the EDG settle into the acceptance band within the 10 second limit. The "B" EDG did not meet the revised criteria on one occasion on September 22, on three occasions on September 29, and on one occasion on October 8. Additionally, the "D" EDG did not meet this criteria on October 6 and again on October 7. These EDGs failed to meet the criteria by a few tenths of a second. As a result of these tests, the "B" and "D" EDGs were placed on a weekly test frequency.

It has been determined, after discussions with the Office of Nuclear Reactor Regulation, that the original testing methodology was satisfactory and that the intent of the surveillance is to assure satisfaction of the breaker closure interlock within 10 seconds. Each of these starts met that criteria; and, therefore, are not considered to be test failures. As a result of this determination, the "B" and "D" EDGs were returned to a monthly test frequency.

Finally, on October 11, 1995, during the performance of the monthly "B" EDG surveillance test, the EDG tripped due to a personnel manipulation error. Per Regulatory Guide 1.108, "unsuccessful start and load attempts that can definitely be attributed to operating error...should not be considered valid tests or failures."

In summary, this Special Report is being submitted as notification that the "D" EDG has experienced its fourth valid failure in its last 100 starts. The current test frequency for all four EDGs is monthly, in accordance with the guidance provided in Technical Specification Table 4.8.1.1.2-1.

Sincerely,

for MER

M. E. Reddemann
General Manager -
Hope Creek Operations

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