

LICENSEE EVENT REPORT

EXHIBIT A

CONTROL BLOCK: (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 N C I M G S 2 2 0 0 0 - 0 0 0 0 0 0 - 0 0 0 3 4 1 1 1 1 4 5

01 REPORT SOURCE L 8 0 1 5 0 0 0 0 3 7 0 7 0 7 0 6 8 3 8 0 8 1 1 7 8 3 9

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES 10

02 While in Mode 5, from July 6 to July 14, 1983, during attempts to start diesel
03 generator (D/G) 2A following completion of 18 month periodic maintenance, ele-
04 ven invalid failures and one valid failure occurred. These are reportable per
05 T.S. 4.8.1.1.3 and 6.9.1.11(b), and similar to RO's 369/81-119, 81-191, 83-09,
06 and 83-42. During the period that D/G 2A was inoperable, redundant D/G 2B was
07 operable. Health and safety of the public were unaffected.

08

09 SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP. SUBCODE VALVE SUBCODE
17 LER/RO REPORT NUMBER EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO.
ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NPD-4 FORM SUB. PRIME COMP. SUPPLIER COMPONENT MANUFACTURER

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS 27

10 Valid failure was due to a failed transformer in the D/G voltage regulator cir-
11 cuitry. Blown fuses and the transformer were replaced. Invalid failures re-
12 sulted from: a bent holding bracke on a bus potentiometer fuse, an incorrectly
13 installed seal, loose bolts on engine crankcase, a missing locknut on a fuel
14 pump control rack, all of which were repaired; and a Unit 1 trip.

15 FACILITY STATUS & POWER OTHER STATUS 30 METHOD OF DISCOVERY DISCOVERY DESCRIPTION 32

16 ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY 35 LOCATION OF RELEASE 36

17 PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION 39

18 PERSONNEL INJURIES NUMBER DESCRIPTION 41

19 LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION 43

20 PUBLICITY ISSUED DESCRIPTION 45

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83 AUG 26 August 17, 1983

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HAL B. TUCKER
VICE PRESIDENT
NUCLEAR PRODUCTION

Mr. J. P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW
Suite 2900
Atlanta, Georgia 30303

Subject: McGuire Nuclear Station Unit 2
Docket No. 50-370
LER/RO-370/83-34

Dear Mr. O'Reilly:

Please find attached Reportable Occurrence Report RO-370/83-34. This report concerns T.S. 4.8.1.1.3, "All Diesel Generator Failures, Valid or Non-Valid, Shall Be Reported To The Commission Pursuant to T.S. 6.9.1." This incident was considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

H. B. Tucker by WAH
H. B. Tucker

PBN:dyh

Attachment

cc: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Mr. W. T. Orders
Senior Resident Inspector-NRC
McGuire Nuclear Station

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DUKE POWER COMPANY
McGUIRE NUCLEAR STATION
REPORTABLE OCCURRENCE REPORT NO. 370/83-34

REPORT DATE: August 17, 1983
FACILITY: McGuire Unit 2, Cornelius, N. C.
IDENTIFICATION: Diesel Generator 2A Failures After Maintenance

DESCRIPTION: During the period of July 6, 1983 to July 14, eleven invalid failures and one valid failure were recorded during attempts to start diesel generator (D/G) 2A. These starts followed periodic maintenance performed per procedure "Diesel Generator Periodic Maintenance". Unit 2 was in mode 5 during this period.

The cause of the valid failure is attributed to Component Failure due to a failed transformer in the diesel generator voltage regulator circuitry.

EVALUATION: On July 6, 1983 D/G 2A was started (start No. 16) upon the completion of periodic maintenance procedure "Diesel Generator Periodic Maintenance" which had begun on June 18, 1983. This maintenance, performed at 18 month intervals, requires an inspection of various critical components for fouling, loosening, or wear. It was observed that the Power Factor meter was not functioning. High cylinder exhaust temperatures, exhaust exiting the turbocharger bypass duct, and fuel injector plungers, all indicated full load on the diesel. However, the Watt meter was erroneously indicating something less than half load. The diesel was tripped manually. This run was classified as invalid since it was for troubleshooting.

Straightening of a bent contact on the buss potentiometer fuse corrected the problems with the Power Factor meter and the Watt meter. It is conjectured that the contact was inadvertently bent during cleaning of the cabinet in which it was enclosed.

The elevated cylinder exhaust temperatures indicated that the valve timing actuator had failed to retard valve timing. A hydraulic seal (bellofram) had been installed backwards during maintenance, resulting in failure of the valve timing actuator.

D/G 2A was restarted on July 7 (start no. 17), and auto-tripped on low engine vacuum. Several loose bolts in the crankcase access panels were tightened. These bolts had apparently not been tightened after maintenance. This run was classified as invalid since it was for troubleshooting.

Again the diesel was restarted (start no. 18) for a 24 hour run to permit an alignment check of the crankshaft. All parameters were normal until, after a 16 hour run, the diesel generator breaker tripped on overcurrent. This was caused by transients in the grid created when McGuire 1 tripped from 100% power. This run was classified as invalid because the D/G would not be tied to the grid in an emergency mode. The overcurrent protection would only be effective when the D/G is in a test mode.

On July 8 D/G 2A was again started for the 24 hour run (start no. 19). The D/G voltage pegged high after the start. The D/G was manually tripped, and a Work Request written to repair a suspected transducer problem. This run was classified as a valid failure due to a failed component.

The voltage transducer was found to be operating properly; however, blown fuses were discovered in the voltage regulator circuitry. The fuses replaced, but the cause of their having blown could not be determined.

D/G 2A was started 7 times between July 8 and July 13 (start nos. 20-26) to diagnose the cause of the blown fuses. A transformer in the voltage regulator circuitry was found to have winding-to-winding shorts (Basler model BE 10773 002).

This transformer had no previous history of failure. It was subsequently replaced. These runs were classified as invalid since they were made for troubleshooting.

On July 13, D/G 2A was started and loaded for 16 hours (start no. 27). The D/G was manually tripped and the crankshaft alignment check completed. This run was classified as a valid success.

During performance of periodic test "Diesel Generator 2A Operability Test" on July 14, D/G 2A was manually tripped when an elevated exhaust temperature was discovered on cylinder 7R (start no. 28). A bolt, attaching the 7R fuel pump control rack to its linkage, had fallen out due to a missing locknut. This allowed the fuel pump control rack to move to the maximum fuel injection position. The bolt was re-installed with a new locking nut. The missing locknut could not be found and no explanation could be made to account for it.

Start no. 28 was declared invalid. It is presumed that the bolt would have been re-installed in a matter of minutes (in fact, it was), or manually controlled. This would have occurred long before any degradation of the D/G operation in an emergency mode.

CORRECTIVE ACTION: Electrical problems associated with the valid failure of July 8 were repaired by replacing fuses and a transformer (Basler model BE 10773 002) in the voltage regulator circuit. A new locknut was placed on the bolt of the 7R cylinder fuel pump control rack linkage. All similar bolts and locking nuts of the fuel pump control rack linkages were examined and found to be satisfactory. D/G 2A was successfully started (start no. 29) and loaded per procedure "Diesel Generator 2A Operability Test" on July 15, 1983.

A sign-off step will be added to the "Diesel Generator Periodic Maintenance" procedure to attest to the correct installation of the Bellofram seal in the valve timing actuator.

SAFETY ANALYSIS: The purpose of the diesel generators during unit shutdown is to ensure that sufficient power is available to maintain the unit in shutdown condition with appropriate instrumentation and control. The diesel generators are redundant in that each provides backup power to its own vital bus.

During the period that D/G 2A was inoperable, D/G 2B was operable. The health and safety of the public were not affected by these failures of D/G 2A.