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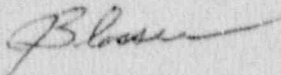
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CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NPF-30
SPECIAL REPORT 90-02-01
INVALID DIESEL GENERATOR FAILURE DUE TO
IMPROPER OUTPUT BREAKER PLUNGER CLEARANCE

This Special Report is being submitted pursuant to Technical Specification (T/S) 4.8.1.1.3 and 6.9.2 concerning the invalid failure of Diesel Generator (D/G) 'B' due to a D/G output breaker plunger bolt being out of adjustment. This revised report changes the basis for invalidity of the D/G failure. The change was deemed necessary after further review of Regulatory Guide 1.108.


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SPECIAL REPORT 90-02, REV 1
INVALID DIESEL GENERATOR FAILURE DUE TO
IMPROPER OUTPUT BREAKER PLUNGER CLEARANCE

Surveillance procedure ISP-SA-2413B, Diesel Generator and Sequencer Testing Train B, was in progress on 9/24/90 to satisfy various 18 month Technical Specification (T/S) surveillance requirements. The plant had entered Mode 5, Cold Shutdown, on 9/23/90. During performance of the "'B' Train Blackout without SIS" portion of ISP-SA-2413B, the 'B' emergency diesel generator (D/G) was intentionally secured without loading to at least 50% of continuous rating. The D/G was secured to investigate a failure of the load sequencer to properly sequence the required emergency loads onto the 4.16 KV safety-related bus (NB02) energized by 'B' D/G. The D/G could have been manually loaded and a valid test completed. The operators intentionally secured the D/G after troubleshooting of the load sequencer.

Initially, the basis for the invalidity of the D/G failure was detailed as: Since the successful D/G start was terminated intentionally without loading to at least 50% of continuous rating, it is not considered a valid test or failure. This position is consistent with Regulatory Guide 1.108.C.2.e(4).

After further review of Regulatory Guide 1.108, it was determined that credit should not be taken for manual loading subsequent to the unsuccessful intended, sequential loading attempt. This event was a successful start followed by an unsuccessful automatic, sequential loading attempt, due to a failed component which is not part of the defined diesel generator unit. As such, this was an invalid failure. To further support this position, this failed component is not tested during periodic testing of the D/G units during normal plant operations but is tested only during the 18 month surveillance. This position is consistent with Regulatory Guide 1.108.C.2.e(5) and 1.108.C.2.e(2).

The D/G surveillance test interval of T/S Table 4.8-1 is not affected.

The following is a summary of the events applicable to this incident:

- The "Blackout Without SIS" portion of the ISP-SA-2413B began at approximately 1800 on 9/24/90.
- Loads shed off bus NB02 as required when the test signal (blackout without SIS) was initiated.
- 'B' D/G successfully started and attained the required voltage and frequency.
- 'B' D/G output breaker closed and energized the safety-related bus (NB02).
- No loads sequenced onto the D/G.
- The 'B' Essential Service Water (ESW) pump was manually loaded onto the D/G.

- The D/G output breaker was maintained closed until troubleshooting was completed, in order to ensure that evidence of the root cause was maintained.
- Troubleshooting of the 'B' D/G output breaker identified that the plunger bolt (which actuates the stationary auxiliary switches when the breaker closes) was out of adjustment. Consequently, the stationary switch did not send a start signal to the load sequencer.
- The D/G was secured and the plunger bolt was adjusted. The test was repeated successfully.

Verification of proper adjustment of the plunger bolt for 'B' D/G output breaker was last performed on 6/6/90 during a 6 month preventive maintenance inspection. The contact did operate during performance of "Blackout with SIS" which had been performed earlier on 9/24/90. Then, a stationary auxiliary switch test position link (test link) was installed prior to the "SI" test. The test link was removed prior to the "Blackout without SIS".

The root cause of this failure has been determined to be improper movement of the test link during breaker testing. An evaluation revealed that use of the test link, in some cases, caused the plunger clip to bend. See attached drawing. This bending results in an increase in the gap between the plunger and the operating rod, preventing the operating rod from moving sufficiently to actuate the switch upon breaker closure. An engineering evaluation verified that the affected breakers are operable in their existing condition provided that the plunger interlock gap distance is maintained within vendor specifications.

This event is similar to Special Report 86-01, Revision 1, dated 4/15/86. The corrective action for the earlier event was to change the periodicity of the preventive maintenance inspection from 18 months to 6 months. Because the root cause has now been determined to be use of the test link, the following corrective actions are being taken:

1. The gap between the plunger and the operating rod will be verified following each breaker rack-in on the D/G output breaker and other similar safety-related breakers.
2. An evaluation of the design and use of the test link will be performed.
3. An evaluation will be performed to determine 10 CFR Part 21 reportability.
4. The bent clips will be replaced at the first available opportunity following receipt of parts.

Surveillance tests are currently performed at least once per 31 days for D/G 'B'. This is in conformance with T/S table 4.8-1 which requires a test interval of not more than 31 days if the number of failures in the last 20 valid tests is one or zero, or if the number of failures in the last 100 valid tests is four or less.

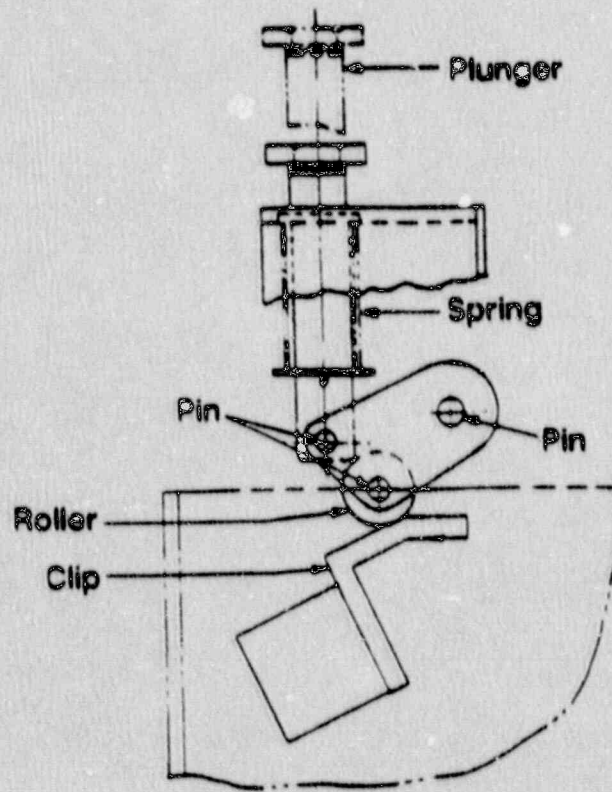
The starting history of D/G 'B' as of the date of this report is summarized as follows:

Number of Valid Tests	Number of Failures During Valid Tests	Number of Failures During Invalid Tests
----- 92	----- 1 #	----- 4 *

LER 89-001-01

* Special Reports 85-05, 89-01, 89-08

Attachment
Special Report 90-02



PLUNGER INTERLOCK