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 PLUNKETT, T.F.      Florida Power & Light Co.  
 RECIP. NAME      RECIPIENT AFFILIATION  
 EBNETER, S.D.      Region 2 (Post 820201)

SUBJECT: Special rept: on 930225, 4B EDG failed. Caused by intermittent connection. Cold solder joint repaired & 4B EDG test started w/voltage regulator in automatic mode.

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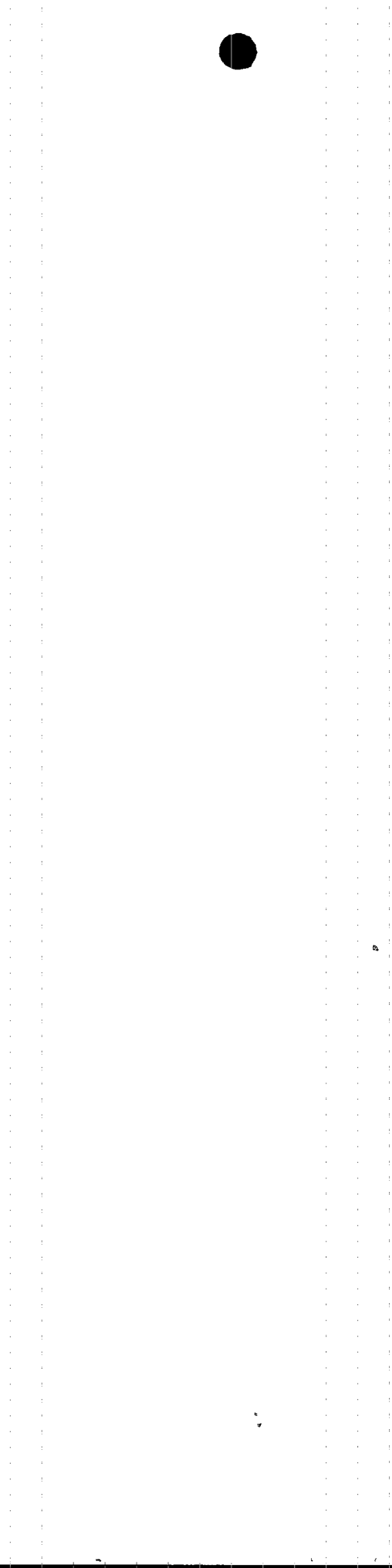
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10 CFR 50.36

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

Mr. Stewart D. Ebnetter:

Re: Turkey Point Unit 4  
Docket No. 50-251  
Special Report - Diesel Generator

In accordance with Technical Specification 4.8.1.1.3, the attached Special Report details the 4B Emergency Diesel Generator failure of February 25, 1993.

Should there be any questions on this information please contact us.

Very truly yours,

T. F. Plunkett  
Vice President  
Turkey Point Nuclear

TFP/JEK/jk

Attachment

cc: USNRC, Document Control Desk, Washington D.C.  
Ross C. Butcher, Senior Resident Inspector, USNRC, Turkey  
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## SPECIAL REPORT

### 4B EMERGENCY DIESEL GENERATOR VOLTAGE REGULATOR FAILURE

#### PURPOSE:

Technical Specification (TS) 4.8.1.1.3 requires the submission of a special report to the NRC in the event of a diesel generator failure. The Technical Specification requires the report to include the information recommended in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August, 1977.

#### BACKGROUND:

Turkey Point Unit 4 has two Emergency Diesel Generators (EDGs) which were installed in 1991 during a dual unit outage for Units 3 and 4. The Unit 4 EDGs have not had 100 valid tests since being declared operable after installation. The failure in the 4B EDG voltage regulator circuit, causing spiking of the output voltage, occurred on February 25, 1993. The following discussion addresses each of the areas listed in Regulatory Position C.3.b of Regulatory Guide 1.108, Revision 1, August, 1977.

#### (1) Diesel Generator unit involved:

The 4B EDG was involved in the unit failure.

#### (2) Identify the failure as being the n<sup>th</sup> failure in the last 100 valid tests:

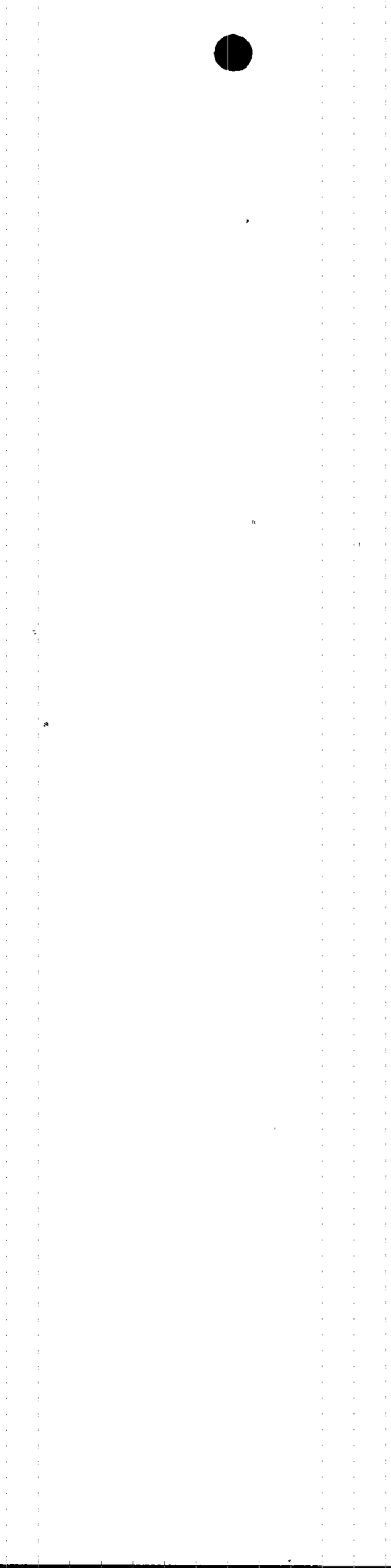
25 valid tests have been completed since the 4B EDG was installed and declared operable. This is the second failure.

#### (3) Cause of failure:

A cold solder joint was identified during a visual inspection of the remote gate firing module of the voltage regulator. The solder joint on the lug of a resistor could be moved around a ring terminal. The signal through this resistor controls the firing of a silicone controlled rectifier (SCR-3). An intermittent connection at this resistor caused the voltage spikes observed by the operators prior to the shutdown of the 4B EDG.

#### (4) Corrective measures taken:

The cold solder joint was repaired. Further inspections of the 4B EDG voltage regulator circuitry did not reveal any similar deficiencies. The 4B EDG was test started with the voltage regulator in the automatic mode. With the generator unloaded, the output voltage was varied plus or minus 5% of



nominal in both the manual and automatic mode of regulator operation. Smooth field voltage response was observed. A two hour loaded test with the voltage regulator in automatic was successful. An operability test was successfully completed in accordance with Operations Surveillance Procedure, 4-OSP-023.1, Diesel Generator Operability Test.

The 4A EDG voltage regulator cabinet was inspected for similar deficiencies. None were found. The Unit 3 EDG voltage regulators are different in design and have continued to operate as designed. No further inspections of the Unit 3 EDG voltage regulators for deficiencies of this type are necessary.

(5) Length of time the diesel generator was unavailable:

The 4B EDG was unavailable for 12.5 hours while trouble shooting and corrective repairs were performed.

(6) Definition of current surveillance test interval:

Two failures have occurred in the past 20 valid demands. The current surveillance test interval is once every seven days. The seven day test frequency will be maintained until seven consecutive failure-free demands have been performed and the number of failures in the past 20 valid demands has been reduced to one.

(7) Verification of test interval in conformance with Regulatory Position C.2.d:

The test interval is in conformance with Regulatory Position C.2.d. and Turkey Point Technical Specifications Table 4.8-1.

