

October 13, 1975

Mr. Norman C. Moseley, Director,
Region II
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
230 Peachtree Street, N.W., Suite 818
Atlanta, Georgia 30303

Dear Mr. Moseley:

ABNORMAL OCCURRENCE 251-75-8
TURKEY POINT UNIT 4
DATE OF OCCURRENCE: MAY 25, 1975

SUPPLEMENTARY REPORT NO. 1
MALFUNCTION OF 4A DIESEL GENERATOR BREAKER
AND 4B BUS STRIPPING RELAY DURING ENGINEERED SAFEGUARDS
AND EMERGENCY POWER SYSTEM INTEGRATED TEST

A. BACKGROUND

An Engineered Safeguards and Emergency Power System Integrated Test was initiated on May 25, 1975. There were two separate equipment malfunctions during the initial test. This report concerns the malfunction of the 4B bus stripping relay 127Z1/4AB1, Type HFA, manufactured by General Electric.

The subject bus stripping relay failed to cause the 4B turbine plant cooling water pump breaker, the 4B Load Center breaker, and the 4D Load Center breaker to open. Therefore, the 4B Diesel Generator breaker could not close automatically because the 4B 4160 volt bus was not completely stripped of load. Complete load stripping of a 4160 volt bus is required as a permissive to allow a diesel generator breaker to automatically close in on the bus.

B. INVESTIGATION

Following the occurrence, the relay was extensively bench tested at Turkey Point, but the malfunction could not be duplicated. The relay was then sent to the manufacturer for further investigation. The investigation of the relay coil revealed an intermittent open circuit which had apparently been caused by electrolytic corrosion. The



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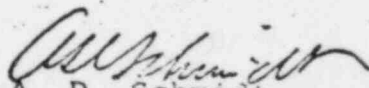
manufacturer has determined this to be a recurring failure mechanism in HFA, HGA and HMA relays which are constructed with milky-white nylon coil spools. A heat stabilizing component of the nylon contains halogen ions which can be released from the nylon over a period of time. The halogen ions can then combine with moisture to form hydrochloric acid and copper salts which can eventually corrode the coil wire. Therefore, a relay with a nylon spool has the potential for a shorter than normal life when subjected to high humidity.

The manufacturer no longer uses nylon spools in the production of HFA, HGA, and HMA relays. The spools are now made of Lexan which has the desired chemical, mechanical, and electrical properties for use in spools. There are no known corrosion problems associated with the use of Lexan.

C. CORRECTIVE ACTION

Unit 4 electrical equipment has been inspected and all HFA and HGA relays with nylon spools have been identified. There were approximately 120 HFA relays and two HGA relays with nylon spools. All nylon spools will be replaced with Lexan spools before the end of the next Unit 4 refueling outage.

Since HFA and HGA relays are also used in Unit 3 electrical equipment, a similar spool inspection and replacement program will be developed for that Unit. All nylon spools found in Unit 3 electrical equipment will be replaced with Lexan spools before the end of the next Unit 3 refueling outage.


A. D. Schmidt
Vice President
Power Resources

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cc: Jack R. Newman, Esquire