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Metropolitan Edison Company
Post Office Box 542
Reading Pennsylvania 19640
215 929-3601

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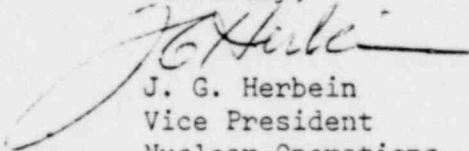
Mr. B. H. Grier, Director
Office of Inspection and Enforcement
Region 1
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Sir:

Three Mile Island Nuclear Station Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
I&E Bulletin 79-23

Enclosed please find the response to I&E Bulletin 79-23 "Potential Failure of Emergency Diesel Generator Field Exciter Transformer".

Sincerely,


J. G. Herbein
Vice President
Nuclear-Operations

JGH:DWR:mrmm

Enclosure

cc: Office of Inspection & Enforcement
Div. of Reactor Operations Inspection
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

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RESPONSE TO NRC BULLETIN 79-23

Potential Failure of Emergency Diesel Generator Field Exciter Transformer

- Item 1. Determine whether or not connections have been made between low KVA rated transformers and high KVA rated EDGs without adequate limitations on the flow of circulating currents. If applicable, provide a description of the corrective action being taken to address this problem.

Response to Item 1:

The primaries of the excitation transformers for Unit 1 Diesel Generators are connected line-to-line and are ungrounded.

The primaries for the relaying potential transformers are wye connected and grounded. The emergency generators are also wye connected and grounded. The flow of third harmonic current is, however, limited by the reflected impedance of the loads on the secondary of the transformer. The secondary is wye connected thus the third harmonic in the secondary must flow through the load. The reflected impedance is proportional to the square of the turns ratio thus effectively limiting third harmonic current. No corrective action is required.

- Item 2. Provide a schedule for the completion of sustained full-load operation test of the EDGs for a duration of not less than 24 hours, or provide the results of the similar long duration, full-load test which has already been completed on the EDGs installed at your facility. The test should demonstrate full-load carrying capability for an interval of not less than 24 hours, of which 22 hours should be at a load equivalent to the continuous rating of the diesel generator and 2 hours at a load equivalent to the 2 hour rating of the diesel generator. The test should also verify that voltage and frequency requirements are maintained and that the cooling system functions within design limits.

Response to Item 2:

The TMI-1 diesel generators have a continuous rating of 2600 KW, a 2000 hour rating of 3000 KW and a 30 minute rating of 3300 KW. A sustained full load test was conducted on the A Diesel Generator. The test was conducted at 3000 KW for 24 hours except that load was increased to 3300 KW for 30 minutes during the 24 hours. (The TMI-1 diesels do not have a specific 2 hours rating). Diesel Generator A tripped after 10 hours of the first attempt at the test. The trip occurred on reverse power because the fuel rack linkage became disconnected from the governor terminal shaft. The fuel rack linkage was reconnected and a successful 24 hours continuous test was completed on October 9, 1979.

1367 172

Diesel Generator B test was started on October 10, 1979. After 5 hours a small fire developed in the fuel injector compartment for the number 1 and number 2 cylinders. The fire was detected by the operator taking readings at the diesel. The diesel was manually shut down and the fire extinguished using a hand held extinguisher. The diesel was not damaged by the fire. The fire is believed to be due to a small amount of fuel oil intermittantly discharged from the clean oil return line vent. The oil from the vent line was caused by a malfunctioning fuel oil pump or injector for one cylinder. Annual maintenance is now being performed on the B Diesel and the 24 hour load test will be completed by January 1, 1980.

The fuel rack terminal shaft linkage will be checked during future monthly load tests until it is determined whether the linkage remains tight. The problem on the B Diesel will be evaluated to determine whether additional corrective action is required.

1367 173