CENTRAL FILE

METROPOLITAN EDISON COMPANY SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

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December 8, 1977
GQL 1699

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

Dear Sir:

Three Mile Island Nuclear Station Unit 1, TMI-1
Response to IE Bulletin No. 77-05

Enclosed please find Metropolitan Edison's response to I.E. Bulletin No. 77-05 concerning the failure of pin and socket type electrical connectors in a post LOCA containment environment.

In light of the fact that the supplement to I.E. Bulletin 77-05 (I.E. Bulletin 77-05A) was received by Met-Ed on November 16, 1977, and because additional analysis is required to formulate a response to that supplement, Met-Ed will respond to I.E. Bulletin 77-05A by December 16, 1977.

We trust this submittal to be satisfactory, however, should you have any additional questions please contact me.

Sincerely,

J. G. Herbein
Vice President

JGH:RAL:tas

Enclosure

cc: U. S. Nuclear Regulatory Commission
Office of Inspection and Enforcement
Division of Reactor Construction Inspection
Washington, D,C. 20555

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Metropolitan Edison Company
Three Mile Island Nuclear Station, Unit 1
I.E. Bulletin No. 77-05

Recent tests conducted by Sandia Laboratories of electrical connector/cable assemblies in a simulated post LOCA containment environment (LWR) demonstrated that the assemblies failed to perform in an acceptable manner. Metropolitan Edison Generation Engineering has reviewed the TMI-1 safety systems which are located within containment, and therefore could be subjected to a post LOCA containment environment. These systems are as follows:

I. Engineered Safeguards Actuated Equipment

AH-E-1A/B/C
NS-V-35
IC-V2
AH-V1B/C
MU-V2A/B
MU-V25
CF-V2A/B
CA-V1,3,4A/B, 13
WDL-V303

II. Reactor Protection Systems

A. Neutron Detectors
B. Reactor Coolant Pressure Transmitters
C. Reactor Outlet Temperature RTD's
D. Potential and Current Transformers for Reactor Coolant Pump Power Monitors
E. Reactor Coolant Flow Elements

III. Engineered Safeguards Actuation Instrumentation

A. Reactor Coolant Pressure Transmitters

The connectors which were tested by Sandia Laboratories, and found to be deficient were of the pin and socket type, with metal shell and screw couplings. TMI-1 does not use any pin/socket connectors for any power or control cable connections. These connections are made by "hard wiring" (i.e. terminal blocks, which are inside either motor terminal boxes or GAI terminal boxes).

Of the safety systems listed above, pin and socket type connectors are used only in the control rod drive mechanisms (CRDM) and in the neutron detectors. Neither the CRDM nor the neutron detectors are required to operate during a LOCA.

The CRDM will trip upon loss of power initiated by a reactor trip. It should be noted, that should a CRDM fail, it will fail with the control rod in the safe ("inserted") position. Additionally, a failure of a connector on a control rod position indicator would produce a false reading which would initiate a non-safety related alarm indication.

Neutron detectors are not required to operate during a LOCA. These detectors provide input to the Reactor Protection System, as a safety system, during operation. It should also be noted that the electrical connectors used in conjunction with these neutron detectors are manufactured by a different company than those which were tested by Sandia Laboratories.

Met-Ed therefore concludes that TMI-1 does not utilize or plan to utilize electrical connector assemblies of the type tested by Sandia Laboratories, or any other similar (pin and socket) type, in systems that are located inside containment, are subject to a LOCA environment and are required to be operable during a LOCA.

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