METROPOLITAN EDISON COMPANY SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

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September 17, 1976
GQL 1314

Mr. J. P. O'Reilly, Director
Office of Inspection and Enforcement, Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Subject: Three Mile Island Nuclear Station
Unit No. 2, Docket No. 50-320
Emergency Diesel Generator

On August 19, 1976 Mr. R. C. Haynes of your office was verbally notified of a situation which Metropolitan Edison Company considered to be reportable in accordance with the requirements of 10CFR50.55(e). This letter constitutes the required thirty day follow-up letter.

1. Description of Proposed Significant Deficiency

The diesel generator building ventilation system is undersized for proper performance of the emergency diesel electric generating plant.

Specifically, the ventilation system was designed to maintain an engine room temperature of 120F with a 92F fresh air supply (99%) temperature level). The original heat load used for sizing was given as 266,000 Btu/hr. for the engine, 8,800 Btu/hr. for the engine exhaust, and 472,000 Bth/hr. for the generator. In the original analysis, credit was taken for cooling by 12,000 cfm engine combustion air, in addition to the 14,300 cfm induced by the ventilation system.

Bidding documents submitted by Fairbanks Morse, the vendor, indicated the heat dissipation from a Unit to be 11,950 Btu/min. (717,000) Btu/hr.) in a table of engine characteristics. Since this dissipation rate was of the same order of magnitude as the original total heat load estimate, the design remained essentially the same.

As part of the design verification and review process, the vendor was requested to confirm the heat dissipation rate.

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The vendor stated that the 717,000 Btu/hr. was for the engine only and did not include 342,000 Btu/hr. from the generator. When asked, the vendor also responded that engine derating would begin as combustion air temperature exceeded 104F.

With these revised heat loads, the present ventilation system will maintain an engine room temperature of approximately 135F with 92F fresh air supply and approximately 150F if the supply temperature is 107F (Maximum recorded temperature).

In either case, the Emergency Diesel Electric Generating Plant would be derated to a load capability of about two-thirds of the specified rating.

2. Analysis of Safety Implication

If not corrected, the engineered safety features systems will not be provided sufficient power from the Emergency Diesel Electric Generating Plant should a loss of off-site power also occur. This condition would be present during the warmest daylight hours of the summer months. Consequently, the criteria of Appendix A to 10 CFR 50 would be violated as would commitments in the FSAR.

3. Corrective Action Taken/Proposed

Proposed corrective action includes the following:

a. Direct combustion air for the engine through duct work from the outside atmosphere to assure diesel engine operation without unacceptable degradation.

b. Install an additional system to exhaust the generator heat directly to the outside atmosphere and provide induction of additional outside air to maintain suitable ambient room air temperature. (130°F Max.)

c. Install additional supply fans to provide forced outside air flow to electrical and switchgear rooms to maintain acceptable ambient conditions. (130°F Max.)

The design ambient room temperatures are based on the maximum recorded outside dry bulb temperature of 107°F.

It is expected the corrective actions will be completed prior to initial fuel load.

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All equipment required for these corrective actions will be Seismic Class I, will be part of the engineered safety features system, and will derive power from the emergency diesel generators.

Very truly yours,

R. C. Arnold
Vice President

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