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METROPOLITAN EDISON COMPANY SUBSIDIARY OF GENERAL PUBLIC UTILITIES CORPORATION

POST OFFICE BOX 542 READING, PENNSYLVANIA 19603

TELEPHONE 215 - 929-3601

August 28, 1978  
GQL 1451

Director of Nuclear Reactor Regulation  
Attn: R. W. Reid, Chief  
Operating Reactors Branch No. 4  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)  
Operating License No. DPR-50  
Docket No. 50-289  
Fire Protection - Additional Information

In response to your letters of August 4 and August 17, 1978, and the telecons of August 18, 21, 22 and 24, 1978, the following additional information is hereby submitted.

August 4, 1978

1. The fire protection measures proposed for the Relay Room (ref. your response to Item 8.C(2), Met-Ed letter of July 20, 1978) are not acceptable because they do not meet the requirements set forth in Appendix A to Branch Technical Position APCSB 9.5-1 for areas of this type, i.e. a Cable Spreading Room. Such conformance can be provided either by installing a manually operated fixed water suppression system or by coating all cables in this area with an approved flame retardant coating. You are requested to indicate your commitment to provide one of these additional measures to provide the needed degree of fire protection and conformance with the provisions of the Branch Technical Position.

Met-Ed Response:

Met-Ed will identify those areas of the Relay Room where adequate hose suppression capability does not exist. For those areas identified, Met-Ed will provide a manually operated fixed water suppression system or will coat the cables with an approved flame retardant coating.

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2. Pursuant to the provisions of 10 CFR 50, Appendix A, Criterion 3, you are requested to indicate your commitment to provide fire detectors in each of the following areas containing safety related equipment:
  - (a) Decay Heat Removal Pump Pits,
  - (b) Decay Heat Closed Cooling Pump and Nuclear Service Closed Cooling Pump Areas, and
  - (c) MCC 1A and 1B areas.

Met-Ed Response:

Met-Ed will provide fire detectors in each of the areas containing safety related equipment identified above. Installation of these detectors will be included under the scope of the detector installations identified in the FHA.

3. The following instrumentation inside containment is required for safe shutdown of the reactor:
  - (a) Pressurizer level instrumentation,
  - (b) Reactor coolant system temperature, and
  - (c) Neutron instrumentation.

Describe: (1) the minimum size fire (dimensions and heat output) that could disable the sensors for all of the channels of each of the above types of instrumentation, (2) the fire hazards in the vicinity of these sensors, and (3) your basis for concluding that these hazards could not disable all the sensors of a given type (if this is your conclusion) or your proposed corrective action to prevent loss of all the detectors of a given type.

Met-Ed Response:

- (a) The pressurizer level sensors (RC-1-LT1, LT2, and LT3) are located outside of the secondary shield (elevation 281'), and as stated in the FHA, the combustibles in this zone (RB-1b) are negligible. The instrumentation wiring is in metallic conduit and passes through containment penetrations #205E (LT3) at 298' elevation and 179° 15' coordinate, and #313 (LT1 and LT2) at 298' elevation and 183° 21' coordinate. These instrumentation conduits are physically separated from the pressurizer heater power cables (also in conduits) which pass through penetrations at 328' elevation and 109°, 114°, and 118° coordinates. Since there are no fire hazards in the vicinity of the pressurizer level sensors inside containment, these sensors will not be disabled by fire.

- (b) The reactor coolant system temperature sensors (RC-5A-TE1, TE2, TE3, and TE4 and RC-5B-TE1, TE2, TE3, and TE4) are located inside of the secondary shield (elevation 281') and as stated in the FHA, the combustibles in these zones (RB-1d and RB-1e) consist of reactor coolant pump motor lubrication system oil and cable insulation. Due to the physical separation between the four (4) cold leg branches, a single fire could not disable more than four (4) of the eight (8) temperature sensors.
- (c) The neutron instrumentation is located inside of the primary shield. Since there are no combustibles in this area the neutron instrumentation will not be disabled by fire.

August 17, 1978

1. (P10) Regarding the response to position P10, given in your letter of June 12, 1978, indicate your commitment to provide manual hose stations at each level inside the reactor building near the personnel air lock, if the results of the study you have committed to provide by December 31, 1978 indicates this is possible. In addition, you should commit to provide equivalent protection from portable systems if the staff review of your study concludes that it is impractical to install hose stations inside containment.

Met-Ed Response:

Met-Ed will provide manual hose stations at each level inside of the reactor building, if the results of the study to be provided by December 31, 1978 indicate that it is possible to do so and NRC grants approval of the modifications based upon their review of the study and its results. Should NRC, upon review of the study, find it or the proposed modifications unacceptable, Met-Ed would at that time expect additional NRC guidance.

2. (P9, P11) Regarding the responses to Positions P9 and P11 given in your letter of June 12, 1978, we do not understand why these submittals cannot be made earlier than the indicated date of July 15, 1979. Therefore, indicate your commitment to provide these submittals by February 15, 1979 or provide a detailed justification for submitting these studies at a later date.

Met-Ed Response:

As discussed during the August 22, 1978 telecon, due to the time involved in preparing specifications for testing, soliciting bids, evaluating bids, awarding contract, scheduling laboratory for testing, evaluating test data, and submitting results and proposed modifications if necessary, it is not possible to provide these submittals prior to July 15, 1979.

3. Indicate your commitment to demonstrate by July 1, 1979, that all interior hose stations served by standpipes that are less than four inches in diameter (nominal pipe size) are capable of delivering a minimum of 100 gpm at a residual pressure of 65 psig at the outlet of the hose station.

Met-Ed Response:

Met-Ed will verify either by testing or by calculation that all interior hose stations (serving safety related areas) supplied by standpipes that are less than four (4) inches in diameter (nominal pipe size) are capable of delivering a minimum of 100 gpm at a residual pressure of 65 psig at the outlet of the hose station.

4. (P5) Regarding the response to Position P5 given in your letters of June 12 and July 20, 1978, indicate your commitment that all fire doors except the two fire doors in series between the Turbine Building and the Control Building will, by January 1, 1979, be electrically supervised, with a time delay alarm in a constantly occupied area, or will be locked closed.

Met-Ed Response:

Met-Ed has in place administrative controls which provide assurance that fire doors are kept closed when not in use. It is Met-Ed's position that to lock all fire doors not only inconveniences normal plant operations but could substantially jeopardize the fire fighting effort should a fire occur in a locked fire area. Met-Ed will by October 31, 1978, identify, 1) fire doors which are electrically locked and alarmed; 2) fire doors which are mechanically locked closed when not in use; and 3) fire doors which are neither locked nor alarmed but which are kept closed when not in use. If upon review of the doors identified, NRC does not accept Met-Ed's position, Met-Ed will at that time discuss alternate positions.

5. Indicate your commitment to remove stored combustibles from the Control Building, elevations 306' and 332', and other areas containing safety-related equipment and to keep such areas free of stored combustibles in the future.

Met-Ed Response:

As stated in the FHA, Section 2.2.2 d, maintenance and operating supplies are required for normal operations. These supplies are transient and the quantities may vary with time. Met-Ed will include in the administrative controls for transient combustibles, guidelines to limit the amount of maintenance and operating supplies to approximately a one-week supply.

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6. Indicate your commitment to repair the small air compressor diesel engines located in the diesel generator rooms to correct the present oil leakage.

Met-Ed Response:

The oil leakage as described above has been corrected.

7. Confirm your commitment to provide supervision for the presently unsupervised supply valve to the automatic water suppression system serving elevation 306' of the Control Building, and the supply valves to the automatic water suppression systems in the two diesel generator rooms.

Met-Ed Response:

The supply valve (FS-V268) to the automatic water fire suppression system serving elevation 306' of the Control Building and the supply valves (FS-V152, 153, 154, 155, 156 and 157) to the automatic water fire suppression systems serving the Diesel Generator Building are currently supervised.

8. Indicate your commitment to provide by December 31, 1978:
  - (a) A list of the system(s) served by the cables routed through the area between the fuel pool and the Control Building; and
  - (b) An analysis demonstrating that a fire in this area would not affect the ability to safely shutdown the reactor.

Met-Ed Response:

Met-Ed will provide the above requested additional information by December 31, 1978.

9. Because some of the redundant components of the Heating, Ventilating and Air Conditioning (HVAC) system serving the Control Building are situated in close proximity, there is the possibility that a single fire could disable the system. Indicate your commitment to provide the following by December 31, 1978:
  - (a) An analysis of the effect of loss of normal and emergency HVAC services on the ability to safely shutdown the reactor;
  - (b) If the above analysis indicates that such loss could preclude safe shutdown, an analysis of the susceptibility of the HVAC system to being disabled by a single fire; and
  - (c) If indicated by (a) and (b) above, your proposed corrective action.

Met-Ed Response:

Met-Ed will provide the above requested additional information by December 31, 1978.

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10. Indicate whether safe shutdown of the reactor could be accomplished if there were an exposure fire involving the electrical (Engineered Safety Features Actuation) cabinets in Fire Zone CB-3C, and the circuitry and controls in these cabinets were disabled or inaccessible. If the ability to achieve safe shutdown could be adversely affected, indicate your commitment to extend the automatic water suppression system in this area to provide coverage to the exterior of these cabinets and to provide spray shields to protect the interior of the cabinets from the effects of water spray from either fixed water suppression systems or manual hoses.

Met-Ed Response:

Met-Ed will perform an evaluation to determine whether safe shutdown of the reactor can be accomplished assuming loss of both ES Actuation cabinets in Fire Zone CB-3C. This evaluation will be completed by September 30, 1978. If the results of the evaluation indicate that the ability to achieve safe shutdown is adversely affected, Met-Ed will provide an early warning detection system and manually operated water suppression for this area, and spray shields for the ES Actuation cabinets.

11. Because prompt notification of the occurrence of a fire is important in assuring prompt control, indicate your commitment to provide for the Control Building, elevation 306', either a fire detector which alarms in the Control Room or a flow alarm in automatic suppression system for this area.

Met-Ed Response:

The automatic suppression system for the Control Building, elevation 306', does include a flow alarm via the system supply valve, FS-V268. This flow alarm annunciates in the Control Room.

Furthermore, in response to the August 21, 1978 telecon, the automatic suppression system for the River Water Intake Structure does include flow alarms via the system supply valves, FS-V246 and FS-V247. These flow alarms annunciates in the Control Room.

Miscellaneous Additional Concerns

1. Describe the composition of the cable penetration fire barrier seals.

Met-Ed Response:

When the cable penetration fire seal upgrading program is completed, all penetrations will be sealed as described in our response to Position P1 in our letter of June 12, 1978 (GQL 1068). The seals will consist of 100% foam

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except where the damming material has been left in place. However, the damming material left in place will have a flame spread rating of less than 25. Furthermore, the fire barrier rating will be entirely based on the foam.

2. Commit to provide rated fire dampers in ventilation ducts between Relay Room, ESAS Room, and Switchgear Room at elevation 338' 6", and in ventilation ducts between the Control Building and the Fuel Handling Building at elevation 306'.

Met-Ed Response:

Met-Ed will provide rated fire dampers for the ventilation ducts indentified above.

3. Our inspection of TMI-1 indicated that one of the doors of the double door in the corridor outside the two diesel generator rooms was unlabeled with regard to fire protection rating. You are requested to indicate your commitment to include the unlocked door in the upgrading program committed to in your response to Position P13 contained in the Met-Ed letter of July 20, 1978.

Met-Ed Response:

As stated in our letter of July 20, 1978 (GQL 1250), Response to 8.b (P13), "All unlabeled fire doors and frames will be replaced by fire door assemblies having an appropriate rating, or the adequacy of the fire resistance of the door assemblies will be established through tests, or other acceptable means."

4. You are requested to commit to installation of fire detectors in the following additional areas:
  - (a) In each Makeup and Purification Pump cubicle;
  - (b) In the valve gallery area;
  - (c) In the general area east of the Makeup and Purification Pump cubicles (the Fuel Handling Building, elevation 281').

Met-Ed Response:

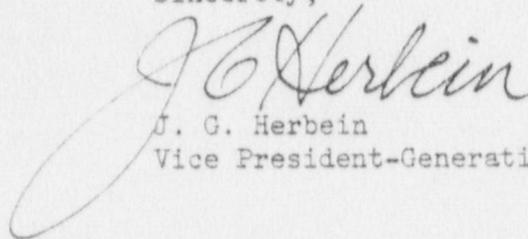
Met-Ed will install fire detectors in the following additional areas:

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- (a) Makeup and Purification Pump cubicle;
- (b) Valve gallery area;
- (c) The area directly east of the valve gallery area (Fuel Handling Building, elevation 281').

Installation of these detectors will be included under the scope of the detector installations identified in the FHA.

Sincerely,



J. G. Herbein  
Vice President-Generation

JGH:RJS:dkf