POOR ORIGINAL

C. Long, Chief
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THRU: V. A. Moore, Chief, I&PTB, DRL
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OCT 2 5 1977

METROPOLITAN EDISON, THREE MILE ISLAND UNIT #1; QUESTIONS RELATING TO INSTRUMENTATION; DOCKET #50-289
I&PTB:DRL:DFS - RT-220

Please include the following questions among those in preparation for transmittal to the applicant:

1. In response to a previous staff question (Ref. Supplement #1, Question #9.2) relating to the performance of equipment located within containment, you stated that the fan and valve motors will have a system of insulation and enclosure which has demonstrated capability to perform under the environments specified (post accident environments). Will this capability be determined by environmental tests conducted under Metropolitan Edison's supervision, or will it be inferred (extrapolated) from existing manufacturers' data? Please provide a detailed justification of your position. Sections 3.7 and 4.4 of the IEEE Standard, Nuclear Power Plant Protection Systems (Rev. 9) should be addressed.

2. Assuming that it becomes necessary to abandon the control room during full power operation, please discuss the procedures that could be performed external to the control room which would ensure a safe shutdown of the plant. Include, in your discussion, the instrumentation available for monitoring vital plant parameters.

Considerations of DBA and equipment damage may be excluded.

3. Please analyze the consequences of an accidental phase reversal at an emergency bus under accident conditions. The single failure criterion should not be used as a basis for the analysis in those cases where machinery rotating in reverse has an adverse effect on its redundant counterparts.

4. Please discuss, in detail, your criteria relating to the physical separation of the installed instrument and logic channels which initiate protective and emergency safety feature action. This discussion should include, but not necessarily be limited to, considerations of the following:

   (a) Separation between redundant instruments.
   (b) Separation between redundant relays and breakers.

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(c) Routing of redundant wiring
(d) Permanently installed test equipment which may be common to redundant instrument channels.

5. Please list the emergency equipment which is powered by the engineered safeguards busses.

6. Under what conditions will the engineered safeguards busses be tied together? Will the tie be made automatically or manually?

7. On Page 9-41 of the PSAR you state that there is manual provision for switching to full recirculation for post accident control room ventilation. Please discuss your justification for the absence of automatic switching in response to a signal indicative of an accident condition.

8. Please identify the type of detector to be used in the Reactor Building Dome Monitor and describe the calibration procedures to be used for the initial and periodic calibration of this monitor.

9. What are the expected ranges of the Atmospheric and Liquid Monitoring Systems.

10. Please indicate the relationship between your DBA analysis and the Radiation Monitoring Systems' ranges, sensitivities and detector locations.

cc: S. Levine
B. Grimes
V. Moore
T. Ippolito
D. Sullivan

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