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Docket No. 50-320

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Richard C. DeYoung, Assistant Director for Light Water Reactors, DPM

METROPOLITAN EDISON COMPANY, THREE MILE ISLAND UNIT NO. 2, SAFETY EVALUATION REPORT FOR INITIAL TESTS AND OPERATION

The Quality Assurance Branch has completed review of section 14 of the FSAR, Initial Tests and Operation. Our Safety Evaluation Report input for this section is enclosed. We have concluded that the initial test program is acceptable with the exception of the four outstanding items identified in the enclosure.

Original Signed by:
 Donald J. Skovholt

Donald J. Skovholt
 Assistant Director for Quality Assurance & Operations
 Division of Project Management

Enclosure:
 Section 14.0 Initial Tests and Operation

cc: w/o enclosure
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DATE →	5/14/76	5/4/76	5/16/76			

14.0

INITIAL TESTS AND OPERATION

The staff has reviewed the information provided in the final safety analysis report pertaining to the applicant's initial test program.

This review included an evaluation of:

1. the applicant's organization and staffing for the development, conduct, and evaluation of the test program;
2. the qualifications and experience of the principal participants managing and supervising the test program;
3. the administrative controls that will govern the development, conduct, and evaluation of the test program;
4. the degree of participation of the plant operating and technical staff in the test program;
5. the applicant's requirements pertaining to the trial-use of plant operating and emergency procedures during the test program;
6. the schedule for conducting the test program;
7. the sequence of testing to be followed; and
8. the methods for conducting individual tests and the acceptance criteria to be used in evaluating the test results for plant structures, systems, and components.

The staff's review also included an evaluation of the applicant's method for review of reactor plant operating experiences that is being conducted to determine where improvement or emphasis may be warranted in his initial test program. The staff has concluded, with the exceptions noted below, that the information provided in the

the application shows that an acceptable initial test program will be conducted that will demonstrate the functional adequacy of plant structures, systems, and components.

1. Shutdown from outside the control room. The applicant's proposal for the conduct of this test as described in test abstract TP 800/36, is not consistent with the intent of Regulatory Guide 1.68. The applicant has been advised that this test should be conducted from locations outside the control room rather than by the currently proposed method which requires that several manual actions be performed from inside the control room. The staff will require that the applicant either conduct this test exclusively from locations outside the control room or provide acceptable technical justification for conducting the test in the manner proposed.
2. Control rod scram time testing. The applicant has only provided acceptance criteria for control rod scram times to the 2/3 insertion point. The assumption used for scram reactivity used in the accident analyses for the facility indicates that only approximately 30-60% of the total scram worth would be inserted when the control rods are 2/3 inserted. Therefore, the applicant has been advised that the staff will require that test acceptance criteria be established for times for full control rod insertion

following receipt of a scram signal during planned tests or acceptable technical justification must be provided for not establishing such acceptance criteria for the tests.

3. Conformance with Regulatory Guide 1.79, "PREOPERATIONAL TESTING OF EMERGENCY CORE COOLING SYSTEMS FOR PRESSURIZED WATER REACTORS" The applicant has not proposed to conduct in-plant testing that would simulate recirculation from the containment sump with the low pressure coolant injection system (LPCI), as recommended by Regulatory Guide 1.79. Instead, he has proposed to perform out-of-plant scale model laboratory tests to obtain data on inlet pipe losses and to demonstrate, under various flow conditions, that vortexing will not occur in the containment sump. The applicant has been advised that for the staff to complete their review of the proposal it will be necessary for the applicant to provide the following:
 - a. a description of the scope of the model tests and the schedule for completion;
 - b. a description of the test method that would be utilized to verify that maximum LPCI system flow rates for the as-built system will not compromise pump NPSH margins, and to provide a technical argument that will establish that the method is conservative;
 - c. a description of in-plant testing to experimentally validate the calculations of head loss for the LPCI pump suction lines.

4. Reactor Protection System and Engineered Safety Features Actuation System response times. The applicant has not proposed to demonstrate by in-plant tests or to otherwise demonstrate that the response times of protection system primary sensors, and interfacing hardware between the measured variables and the input to the sensors, will meet the times assumed in the accident analyses for the facility. The applicant has been advised that the staff will require either in-plant tests or other acceptable demonstration tests that will show that the protection channels will meet the required response times prior to fuel loading.