

UNITED STATES  
CLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Docket No. 50-320

November 21, 1975

Metropolitan Edison Company  
ATTN: Mr. R. C. Arnold  
Vice President  
P. O. Box 542  
Reading, Pennsylvania 19603

Gentlemen:

As a result of our continuing review of the Three Mile Island Nuclear Station Final Safety Analysis Report, we have identified the enclosed request for additional analysis. The need for and basic requirements of this analysis were conveyed to your staff in a meeting in Bethesda on October 30, 1975 during a discussion of the analysis which had previously been performed in response to second round question 042.7.

In order to maintain our present expected licensing schedule, we require your response by January 20, 1976. If you cannot meet this date, please inform us within 10 days of the receipt of this letter.

Sincerely,



Karl Knief, Chief  
Light Water Reactors Branch 2-2  
Division of Reactor Licensing

Enclosure:  
Request for Additional Analysis

ccs: See page 2

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84-188

ccs:

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REQUEST FOR ADDITIONAL ANALYSIS  
THREE MILE ISLAND, UNIT 2

21.50

The staff requires the following additional analyses of the Three Mile Island 2 plant relative to a postulated main steam line break inside containment, to demonstrate that the plant is safe from both core and containment integrity standpoints.

The following parameters must be considered in the analyses:

1. A spectrum of steam line breaks inside of containment;
2. The most reactive rod stuck out;
3. The worst single active failure affecting:
  - a. core behavior
  - b. containment integrity
4. Availability of offsite power, i.e., with and without offsite power.
5. As a consequence of the accident, consider the possibility of other equipment failure, e.g., loss of reactor coolant pumps or valve operation due to steam environment.

For those sequence of events determined to be most severe relative to the core behavior and containment integrity, the following results are to be presented for the cases where operator action may and may not be required.

- a) reactor coolant system pressure;
- b) steam generator pressure;
- c) fluid temperature
- d) fuel and clad temperature;
- e) discharge flow rate;
- f) steam line and feedwater flow rates;
- g) safety and relief valve flow rates;
- h) pressurizer and steam generator water levels;

- i) mass and energy transfer within containment;
- j) containment pressure;
- k) reactor power;
- l) total core reactivity;
- m) hot and average channel heat flux; and
- n) minimum departure from nucleate boiling ratio (DNBR).

With each analysis provide a reference of pertinent events and actions including operator actions.

A table of pertinent parameters for each of the accidents analyzed which were not determined to be limiting will be satisfactory. Include minimum DNBR, containment pressure, and a description of the accident.

In the event the consequences of a steam line break using the above assumptions are unacceptable, a probabilistic analysis of the sequence of events that would occur, including any necessary operator action, should be performed to quantify the degree of risk involved.

In the event your analyses indicate unacceptable results for either the core or containment integrity, indicate what design modifications could be performed to assure safety.

Locket No. 50-320

5/5/76

Metropolitan Edison Company  
ATTN: Mr. R. C. Arnold  
Vice President  
P. O. Box 512  
Reading, Pennsylvania 19603

Gentlemen:

At several recent meetings, your staff has presented verbally the status of your efforts in response to our request for additional analysis, Item 21.50, dealing with a postulated steam line break at three Mile Island Unit 2. During these meetings, questions were raised about the suitability of the systems and components used to mitigate the effects of that accident.

We have considered these systems in the light of the preliminary information on your analyses available to us and tentatively conclude that, provided the following criteria are met, the present systems and components as designed are acceptable for use in your analysis in response to Item 21.50.

1. The main steam isolation valves should be automatically actuated upon indication of breaks in the main steam lines.
2. The Condensate and Feedwater System, including the emergency feed features, should be designed so that any single failure will not prevent isolation of the system to terminate feedwater flow. Isolation should be automatically actuated unless it can be shown that the time available to perform all necessary operator action is acceptable.

It is believed that conformance with these criteria will improve the capability of the plant to handle the full spectrum of steam line breaks. We await completion of your analysis in accordance with Item 21.50, including conformance with the above or adequate justification of any proposed alternative.

Sincerely,

R. C. Arnold, Assistant Director

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Dupe  
SEE PREVIOUS YELLOW FOR ADDITIONAL  
CONCURRENCE

DUPLICATE DOCUMENT

84-132

Entire document previously entered  
into system under:

ANO 7904240006

No. of pages: 3