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SEP 28 1979

Mr. Thomas D. Keenan, Chairman
General Electric Operating Plant Owners' Group
Vermont Yankee Nuclear Power Corporation
Seventy-Seven Grove Street
Rutland, Vermont 05701

SUBJECT: ADDITIONAL INFORMATION REQUIRED TO EVALUATE NEDO-24708

Dear Mr. Keenan:

The Analysis Group of the Bulletins and Orders Task Force is reviewing your August 17, 1979 report, NEDO-24708, "Additional Information Required for NRC Staff Generic Report on BWR Reactors". In the review to date we have identified several areas in the loss of feedwater transient analyses in which we will require additional information or a formal clarification of the information contained in NUREG-24708.

Our specific requests for additional information are contained in the enclosure to this letter. In order for us to maintain our schedule, the requested information should be provided not later than October 1, 1979 as agreed to in our meeting on September 6, 1979. If you require any clarification of these matters, please contact W. F. Kane who may be reached at (301)492-7745.

Sincerely,

Original signed by:

D. F. Ross, Jr., Director
Bulletins and Orders Task Force
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc: See attached lists

RD.8.2
GE

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REQUESTS FOR ADDITIONAL INFORMATION
NED 24708 TRANSIENT ANALYSES
ANALYSIS GROUP

1. Provide a detailed discussion of how the SAFE code simulates a transient such as loss of feedwater (LOFW). Describe all input parameters and output parameters used for determining the Sequence-of-Events tables in NEDO-24708. Provide a comparison of the results of a SAFE code simulation with the normal transient code (REDY/ODYN) for each reactor class. Describe all modifying assumptions made when using the SAFE code to simulate transients.

2. Provide details on how BWR-1 transients were derived from the BWR-2 analyses.

3. Provide a complete set of curves for the BWR-4 LOFW analyses. These should include: vessel level, vessel pressure, steam and feedwater flow, safety relief valve flow, ECC flows, steam line pressure, peak fuel temperature, bypass valve flow, wide range and narrow range sensed level, core inlet flow, drive flow; neutron flux. For other reactor classes provide vessel pressure, vessel level, SRV flow, ECCS flows, steam flow; feedwater flow.

4. Identify the representative plant in each reactor class and the rationale for selection. Describe how representative plants provide plant specific transient response when systems characteristics of plants differ within each reactor class.

5. For the BWR-1 reactor with LOFW and no control rod drive (CRD) flow, show that the operator has one hour to manually isolate the reactor before core uncovery.

6. It is not apparent that additional failure in shutdown methods would not aggrevate or change the course of a simulated transient as stated in NEDO-24708. Clarify.

7. For BWR-1 with no emergency condenser (EC) or CRD flow, provide the system response when the SRV recloses instead of remaining open. The pressure will rise again to the SRV set point and continue this cycling at high pressure while inventory is being depleted. If manual action is required, provide the instrumentation available to alert the operator and what actions are required to maintain acceptable core inventory.

8. For the BWR classes where the SRV cycle before decay heat is removed by ECCS, what happens to the vessel inventory. Provide plots of level, pressure, ECCS, and SRV flows.

9. It appears that a stuck open relief valve (SORV) combined with a LOFW and failure of high pressure systems is not as severe as a properly operating SRV or one that is partially stuck open. In determining the course of a LOFW transient a sensitivity study should be performed for determining operator action times for event recognition and proper mitigation.

10. Justify the assumptions used in the analyses to show operator action times as provided in the sequence of events. For example, justify the selection used for decay heat which varied for reactor class. How sensitive is the analysis to your assumptions.

11. It appears that operationally it is desired to manually restart a failed high pressure system prior to using the automatic depressurization system (ADS) for the low pressure (LPCI/LPCS) ECCS. However, the core inventory recovery is faster with ADS (no high pressure ECCS) and LPCI/LPCS. What will the guidelines suggest to the operator?

12. Supply curves to show the differences in SRV opening times and level recovery times for BWR-4 and BWR-5 reactors.

13. Provide the analyses and sequence of events for the LOFW coupled with a stuck open SRV and the following: loss of offsite power; loss of all A-C power; and loss of one train of D-C power with loss of offsite power. Provide the following time-dependent variables: SRV flow; vessel pressure; ECCS flows; vessel water level; and fuel temperatures. The initial conditions assumed in the analyses should be provided and the time at which stable conditions are reached. If core uncovery results, provide the basis for assessing core damage.

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