

Docket No. 50-263

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REVIEW OF NEDO-20846, MONTICELLO ATWS SUBMITTAL

Report Title: NEDO-20846, "Anticipated Transients Without Scram
Study for the Monticello Generating Plant"

Docket No.: 50-263

Originating Branch and Project Manager: ORB-2, B. Buckley

Technical Review Branch Involved: Reactor Systems Branch

Description of Review: First Round Questions

Review Status: Awaiting Information

In order that we may continue our review of the subject topical, additional information is requested. The analysis submitted included the effects of proposed plant modifications. In order to satisfy paragraph II.c of Appendix A to WASH-1270 either revise the analysis to reflect the plant as it is, or submit plans for any proposed plant changes and a schedule for implementation of these changes.

Victor Stello, Jr., Assistant Director
for Reactor Safety
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Enclosure:
Concerns on NEDO-20846

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Enclosure 1

CONCERNS ON NEDO-20846

1. Provide the peak torus water temperature reached during the MSIV closure ATWS. Provide and justify a torus water temperature limit. If the calculated temperature exceeds the limit, discuss the plant modifications needed to keep torus water temperature below the proposed limit. NEDO-20626 suggests a pool temperature limit of 170°F. If the peak torus water temperature exceeds 170°F discuss plant modifications needed to keep this temperature below 170°F.
2. The analysis takes credit for the operator initiating the standby liquid control system five minutes after the ATWS event. Discuss the indications available to the operator to assure this manual initiation of the SLC.
3. In figure 4-3 the relief valve flow oscillates between about 3,000 and 7,000 lb/sec from about 30 seconds to 95 seconds after the ATWS. At about 108 seconds the relief valve flow begins to oscillate between 3,000 and 14,000 lb/sec. Explain this difference in the peak relief valve flow.
4. The Technical Specifications present sodium pentaborate solution concentration versus net tank volume in Figure 3.4.1. The concentration varies from 10.8% to 21.4%. Perform the analysis using each of these concentrations. Justify the use of 13% as an initial condition listed in Table 3-1 of NEDO-20846. Also justify the poison reactivity worth and provide vessel volume.
5. In Section 4.4 of the Technical Specifications a minimum flow rate of 24 gpm for each of the standby liquid control system pumps is listed as a surveillance requirement. Perform the analysis using this value. In Table 3-2 of NEDO-20846 a 28 gpm flow rate per pump is listed. Provide your basis for using this value in your analysis. Provide the total volume of poison injected following the ATWS for both hot shutdown and cold shutdown.
6. It is stated that no accounting for possible non-homogeneous mixing was made since this would take a detailed evaluation. However, GE stated at a meeting with the staff on August 7, 1974, that tests were being conducted on borated water mixing phenomena. Demonstrate that your assumption of uniform mixing is consistent with the experimental data. Otherwise, perform a sensitivity study to show the effects of nonhomogeneous mixing of the liquid poison, varying the mixing efficiency from 50% to 100%.

7. The staff has submitted to General Electric questions on NEDO-20626 (letter from V. Stello to I. Stuart, January 28, 1974, and letter from W. Butler to I. Stuart, April 9, 1975). Respond to the following questions as they apply to Monticello: 1, 4, 5, 6, 9, 12, 13, 16, 17, 310.1, 310.3, and 310.5.
8. Provide the bases for assuming thirty seconds for transport time of the sodium pertaborate solution from the storage tank to the vessel and for the liquid to become effective in the core.