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Water Reactor
Divisions

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October 15, 1982

NS-EPR-2669

Mr. Darrel G. Eisenhut, Director
Division of Licensing
Office of Nuclear Regulatory Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Eisenhut:

On October 14, 1982, Edward M. Burns of my staff received a telephone call from Gus Lainas of the NRC informally requesting information about the Westinghouse review of Dresser safety valve performance as observed in the EPRI Safety and Relief Valve Test Program. This letter provides a summary of their discussion and provides some additional information that may be of use to the NRC in conducting your review.

In conjunction with the Westinghouse Owners Group, Westinghouse has followed the EPRI test program and conducted a review of the observed safety valve test performance. A report detailing the extent of this review was provided to the NRC in July of this year (reference 1). The majority of pressurizer safety valves in use at Westinghouse designed plants are of Crosby design and manufacture. The report is, therefore, predominantly directed towards the Crosby design. Nevertheless, some figures are provided in the report that graphically display the Dresser valve performance.

Two Dresser safety valves (Models 31739A and 31709NA) were tested in the EPRI program. Their performance during steam discharge is shown in Figures 3-7 and 3-8 of the report. In Figure 3-7 (Model 31739A) it may be observed that the initial test runs did not result in rated flow being achieved. Following ring position adjustments, the test valve consistently reached its rated flow rate. The second Dresser safety valve tested did not require ring position adjustments to achieve rated flow.

The general sensitivity of flow rates to ring position adjustments may be extracted from the figures in the report: Of the six valve discharge cycles displayed, only the one Dresser valve showed a noticeable sensitivity to ring position changes. The remaining valves consistently achieved rated flow across a wide range of ring positions.

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Two Westinghouse designed plants utilize Dresser safety valves: North Anna Units 1 and 2 and Catawba Units 1 and 2. The valve models at these plants were not the models tested by EPRI. Pertinent data on the valves at these plants and the tested valves are:

<u>Dresser Valve Model</u>	<u>Rated Capacity (lbm/hr)</u>
31739A (test)	297,845
31709NA (test)	509,918
31759A (North Anna)	388,670
31749A (Catawba)	420,000

For safety analyses purposes, 380,000 lbm/hr and 420,000 lbm/hr were used for North Anna and Catawba, respectively.

Westinghouse has discussed with Dresser steps to be taken to arrive at appropriate ring settings for valves not tested by EPRI. These discussions are still ongoing.

Analyses have been conducted to determine the effects of degraded valve performance (less than rated flow) on overpressurization transients. The most significant of these conducted in conjunction with the EPRI test program was the contingency analysis report provided to EPRI (reference 2). The analyses showed that ASME Code requirements for the reactor coolant system would not be violated even if steam flow was 80 percent of rated and not initiated until 125 psi above the nominal valve opening pressure. With the valve opening at its nominal setpoint, flow can be degraded even more.

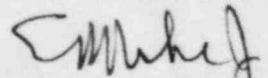
WCAP-7769, "Overpressure Protection for Westinghouse Pressurized Water Reactors," shows that for the enveloping 4-loop plant, assuming reactor trip on high pressurizer pressure, approximately 40 percent of rated capacity would be required (reference 3).

In summary, while EPRI tested two Dresser safety valves, the valves tested were not models in use at Westinghouse plants. Both test valves consistently achieved rated steam flow, one following several ring adjustments. Finally, Westinghouse is discussing with Dresser those steps necessary to confirm the ring position settings for valves not tested.

Should you require additional information on this topic, feel free to contact either myself or Ed Burns of my staff (412-373-5235).

Very truly yours,

WESTINGHOUSE ELECTRIC CORPORATION



E. P. Rahe, Jr.
Nuclear Safety Department

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References:

1. Burns, E. M., et.al., "Review of Pressurizer Safety Valve Performance As Observed in the EPRI Safety and Relief Valve Test Program," Westinghouse NES Report, WCAP-9804, June 1982.
2. Westinghouse letter, E. M. Burns to C. W. Sullivan (EPRI), Subject: EPRI S&RV Test Program/Phase A of Agreement V102-19 - Level 2 Acceptance Criteria, NS-MFSE-81-132, June 2, 1981.
3. Cooper, K., et.al., "Topical Report: Overpressure Protection for Westinghouse Pressurized Water Reactors," Westinghouse NES Report, WCAP-7769, Revision 1, June 1972, Figure 2-2.