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February 21, 2000
OG-1782

Project 693

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attn: Mr. Stewart N. Bailey

Subject: Transmittal of Report, "Evaluation of Potential Boron Dilution Following Small Break Loss of Coolant Accidents - Final Report," January 2000, 47-5006624-00

Reference: Letter, "Submittal of B&WOG Report, Evaluation of Potential Boron Dilution Following Small Break Loss of Coolant Accidents," 77-5002260-00, from W.W. Foster to USNRC, September 11, 1998, OG-1718

Gentlemen:

The B&W Owners Group and the NRC have been actively working toward the resolution of issues associated with the potential for partial RCS deboration during the mitigation of the Small Break Loss of Coolant Accident (SBLOCA).

The referenced letter provided a status of current evaluation activities as of September 1998. This letter provides a summary of the analytical evaluations that have occurred over the past year that were committed to in the referenced letter.

This report is the final report in the series dealing with the issue of boron dilution. Results of earlier studies and B&WOG actions taken are reviewed. Analytical results, developed during the past year, on vent valve performance and long-term SBLOCA recovery are presented.

The potential for rapid core reactivity insertion due to the forced transport of deborate into the core region, by either restart or bump of the reactor coolant pumps, is shown to be procedurally restricted to safe conditions. Additionally, natural circulation restart is shown to be a source of insufficient core reactivity insertion, thus removing concerns over core or plant damage.

DO45

It is demonstrated that the reactor vessel vent valves remain open and flowing during both system refill and restart of natural circulation. Vent valve operation mixes highly borated water with deborate at the downcomer entrance, again mitigating core reactivity concerns. It is concluded that issues regarding deborate accumulation within the reactor coolant system during SBLOCA are resolved. B&W designed plants may operate without expectation of difficulties during SBLOCA recovery.

If there are any questions on the enclosed report, please call the undersigned at 419/321-7167 or Robert Schomaker at Framatome Technologies at 804/832-2917.

Sincerely,



Frank L. Swanger
Chairman
B&WOG Steering Committee

c: Dr. Warren Lyon - USNRC

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