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

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MEMORANDUM FOR: R. Tedesco, Assistant Director for Plant Systems, DSS

FROM: F. Eltawila, Containment Systems Branch, DSS

SUBJECT: MINIMUM CONTAINMENT PRESSURE ANALYSIS FOR ECCS PERFORMANCE

In reference to E. G. Case's memorandum for Office of Nuclear Reactor Regulation Staff dated October 25, 1977, in which he requested the NRR staff to report any information of relevance, thereby state some concern regarding the subject above.

Branch Technical Position CSB 6-1 "Minimum Containment Pressure Model for Emergency Core Cooling System Performance Evaluation," requires in parts that "the spillage of subcooled ECCS water into the containment provides an additional heat sink as the subcooled ECCS water mixes with the steam in the containment. The effect of the steam-water mixing should be considered in the containment pressure calculations." It is my understanding that Westinghouse does not follow the above recommendation and we have previously approved their ECCS evaluation model for all licensed plants.

Westinghouse

In addition, B&W approved ECCS evaluation model is based on completely unacceptable thermodynamic assumptions for these kind of analysis and heat sinks less than those recommended in BTP CSB 6-1.

F. Eltawila

F. Eltawila 27711
Containment Systems Branch
Division of Systems Safety

cc: G. Lainas
J. Shapaker

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ILLUSTRATIVE SAFETY PROBLEMS

I. CONTAINMENT ISOLATION

The General Design Criteria set forth in Appendix A to 10 CFR Part 50 establish the "minimum requirements for the principal design criteria for water-cooled nuclear power plants". (10 CFR Part 50.34) General Design Criteria 54, 55, 56 and 57 establish minimum requirements concerning isolation of piping systems that penetrate the reactor containment. Criterion 55 and Criterion 56 specify four containment isolation valve arrangements. Each isolation valve arrangement involves a combination of locked closed isolation valves and/or automatic isolation valves to prevent the release of radioactive material. These criteria specify that one of the four valve arrangements "shall be provided -- unless it can be demonstrated that the containment isolation provisions for a [illegible]cific class of lines, such as instrument lines, are acceptable on some other defined basis".

In contrast to these specific requirements, the staff is aware that many of the lines at the Indian Point 3 plant do not have isolation valve arrangements which correspond to any of the arrangements specified by Criterion 55 and Criterion 56. Furthermore, neither the staff nor the licensee has identified a "specific class of lines" that need not utilize the specified arrangements. Nor has either the staff or licensee identified "some other defined basis" on which the Indian Point 3 isolation valve arrangement can be demonstrated to be acceptable.