UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

September 14, 1976

Honorable Marcus A. Rowden
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: REPORT ON WESTINGHOUSE ELECTRIC CORPORATION'S ECCS UPPER HEAD INJECTION EVALUATION MODEL

Dear Mr. Rowden:

At its 197th meeting, September 9-11, 1976, the Advisory Committee on Reactor Safeguards completed a review of the Westinghouse Electric Corporation's ECCS Upper Head Injection (UHI) Evaluation Model. Six Subcommittee meetings have been held with representatives of the Westinghouse Electric Corporation and the Nuclear Regulatory Commission, the first being held at Monroeville, Pennsylvania, on June 25, 1975, and the remaining meetings at Washington, DC, on October 4 and December 20, 1975, and March 16, June 15, and September 2, 1976. The Committee also had the benefit of the documents listed below.

The NRC Staff has taken into account the special features of UHI and the supporting research and development in order to formulate evaluation model requirements which suitably conform to 10 CFR 50, Appendix K. Further, sensitivity studies are being performed by Westinghouse to provide assurance that sufficiently conservative bounds for the evaluations will be included.

The ACRS believes that the Westinghouse Electric Corporation's ECCS UHI Evaluation Model, with the requirements set by the NRC Staff, will conform to 10 CFR 50, Appendix K. The approved evaluation model, with appropriate use of plant-specific parameters on a case-by-case basis, will aid in the licensing reviews.

The ACRS encourages the NRC Staff to continue its deliberations in seeking accelerated and coordinated programs for establishing meaningful experimental facilities and independent analytical tools for studying the performance of UHI-ECC systems.

As noted in its November 20, 1974 Report on Evaluation Models for Commission Criteria for Emergency Core Cooling Systems for Light-Water-Cooled Nuclear Power Reactors, the ACRS "remains mindful that the Evaluation Models, in themselves are not the desired end products, but that effective, reliable emergency core cooling systems are the objective." Continuing efforts are needed for implementing the safety research programs to provide bases for confirming design margins and for improving ECCS reliability and capability.

Sincerely yours,

Dade W. Moeller

Dade W. Moeller
Chairman

REFERENCES:

1. "Status Report to the Advisory Committee on Reactor Safeguards in the Matter of Westinghouse Electric Corporation ECCS-Upper Head Injection Evaluation Model Conformance to 10 CFR 50, Appendix K," Proprietary (August 1976) U.S. Nuclear Regulatory Commission - Office of Nuclear Reactor Regulation.
2. WCAP-8400 - "ECCS Heat Transfer Experiences with Upper Head Injection," Proprietary, Volume I (October 1974), Volume II (January 1975), Volume III (August 1976), Westinghouse Electric Corporation.
3. WCAP-8479, Revision 1 - "Westinghouse Emergency Core Cooling System Evaluation Model Application to Plants Equipped with Upper Head Injection," Proprietary (August 1976) Westinghouse Electric Corporation.
4. WCAP-8582 - "Blowdown Experiments with Upper Head Injection in G-2, 17X17 Rod Array," Proprietary, Volume I (January 1976), Volume II (August 1976), Westinghouse Electric Corporation.
5. WCAP-8793 - "G-2, 17X17 Refill Heat Transfer Tests and Analysis," Proprietary (August 1976) Westinghouse Electric Corporation.