ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

January 14, 1975

L. Manning Muntzing
Director of Regulation

Subject: LOCKING OUT OF ECCS POWER OPERATED VALVES

The Committee suggests that further attention be given to questions which arise in connection with procedures involving physically locking out electrical sources to specific motor-operated valves required in the engineered safety functions of ECCS systems, based on the assumption that a spurious electric signal at an inopportune time could actuate the valves to the adverse position; e.g., closed rather than opened, or opened rather than closed. Examples where this procedure is being applied include Trojan, Salem, and Beaver Valley.

The ACRS believes that the matter should be studied using a system approach, both for existing and for future plants. Examples of suggested questions to be answered include:

(1) An evaluation of the probability of a spurious signal;

(2) Can the valve operator be reactivated in a reasonable time after indication of loss of electric power;

(3) If the circuit breaker is opened, are signal lights lost;

(4) If the signal lights are deactivated, is it possible to reactivate them through bypass circuits, etc.;

(5) Is it possible to lock a valve out in the apparently open position whereas it actually is closed since one depends on indicator position;

(6) Cases are documented where valve stems have broken leaving the gate in the closed position; is the indicator such that the lights indicate an open valve while it is actually closed
   (a) Is there a positive testing process applicable on a routine basis to establish that the critical valves are indeed correctly aligned, permitting a flow path;
   (b) If no testing process exists, can one use non-destructive examination techniques to unequivocally locate the gate position

(7) Would a more reliable ECCS system result if fewer motor-operated valves, more check valves, and more parallel paths were used; what other factors influence the choice of alternate designs;

(8) What are the pros and cons of a system where an incorrect action can be rapidly reversed by an alert operator compared to a system where electric power is locked out, but one or more valves are incorrectly aligned requiring the operator to go some distance in a very short time to reactivate the circuit breakers.

The Committee would be willing to discuss this matter with the Regulatory Staff through an appropriate subcommittee.

/s/ W. Kerr

W. Kerr
Chairman