



CHAIRMAN

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

November 17, 1980

The Honorable Morris K. Udall, Chairman
Subcommittee on Energy and the Environment
Committee on Interior and Insular Affairs
United States House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

This responds to your letter of June 11, 1980 in which you asked the Commission again to consider seriously control system failures in nuclear power plants. Since such failures may have severe consequences, the NRC staff has begun to better define their safety significance. Enclosure 1 summarizes these actions.

Recent operating experience, such as the Crystal River event of last February, and continuing evaluation of the control system failure issue, has led the staff to propose to the Commission that the issue has sufficient safety significance to justify its being designated as an "Unresolved Safety Issue" (USI) and reported to the Congress under Section 210 of the Energy Reorganization Act (See Enclosure 2). That proposal is currently under consideration by the Commission. Classification as an USI would assure priority for resources needed for timely and effective resolution of this issue.

At the present time, the Commission is relying on the consensus engineering judgment of senior staff that the risk associated with control system failures is not sufficient to require immediate corrective actions such as power derating. This judgment is not based on any special analyses or calculations beyond those normally performed in the course of staff review of postulated transients and accidents. We recognize (as you noted in Mr. Denton's October 22, 1979 memorandum) that the analyses do not take into account all events that can be postulated. The program outlined in Enclosure 2 is intended to provide a better basis for judging the adequacy of plant protection features and operator actions to mitigate control system failures.

With respect to the differences you noted between the wording of our May 14 response and that of the previous staff statement enclosed with that response, the wording in the May 14 letter does convey a greater sense of certainty about the adequacy of analyses performed to evaluate the interaction between high energy lines and control systems than does the December 19, 1979 memorandum. We regret any misunderstanding this may have caused.

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The Honorable Morris K. Udall

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Please be assured that the Commission is evaluating the safety significance of control system failures and, depending on our findings, will take whatever actions are necessary to continue to assure adequate protection of the public health and safety.

Sincerely,

Original Signed By
John F. Ahearne

John F. Ahearne

Enclosures:
As stated

UPDATE OF INFORMATION PROVIDED IN CHAIRMAN'S
MAY 14 RESPONSE TO UDALL LETTER

Significant corrective measures which have been or will be required as a result of control system malfunction or failure analyses conducted to date include the following:

1. For high energy line breaks which may be exacerbated by consequential control system failures, some licensees adopted new operator procedures as needed to assure that the postulated events would be adequately mitigated.
2. In response to Bulletin 79-27, some licensees have taken corrective action including hardware changes, and revised procedures to assure that single failures of power supplies will not simultaneously cause transients and failure of instrumentation required to mitigate these transients.
3. Licensees with B&W plants have been required to address changes in the Integrated Control System to enhance its reliability.

The analyses upon which decisions concerning the foregoing corrective measures have been based are as follows:

1. Operator procedures to mitigate high energy line breaks causing additional control system failures were based on an assessment of required operation actions and small break LOCA analyses.

2. Corrective actions resulting from Bulletin 79-27 have not been based on calculations but rather on deduction regarding the sequence of events expected from postulated control system failures. A limited amount of testing has been done at Crystal River to confirm some of the conclusions.
3. Measures to enhance B&W Integrated Control System reliability were based on failure modes and effects analysis and operating history review.

The Commission's program for determining the extent to which unanticipated control system failures could aggravate accident sequences currently considered in the NRC's regulatory requirements consists of the following:

1. Creation of a new branch to focus on systems interactions.
2. Continuation of Integrated Reliability Evaluation Program to establish the relative risks of control system failures.
3. Identification of failure modes of safety related instrumentation concurrent with control system failure through reviews of licensee replies to Bulletin 79-27.
4. Future indepth review of license applications against existing Standard Review Plan Section 7.7 acceptance criteria, including failure modes and effects analyses.
5. Participation with an IEEE working group in development of IEEE standards for control and other non-safety equipment.

The Commission staff is also considering establishing a new unresolved safety issue, "Safety Implications of Control Systems." A paper which presents this proposal is under consideration by the Commission.