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February 6, 1981
S3330-WCL-021

Dr. William Kerr
Advisory Committee on Reactor Safeguards
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Dr. Kerr:

Subject: Safety Implications of Control Systems

The following are some suggestions for future Electrical Power Systems Subcommittee meetings on the Safety Implications of Control Systems.

1. A Failure Modes and Effect Analysis (FMEA) is one method to assess the effect of control system failures. Babcock & Wilcox was requested by the NRC to perform an FMEA for their systems. The subcommittee may find it beneficial to review the results of the B&W FMEA, to judge the effectiveness of this method. Of importance, is how broad was the B&W analysis, and what assumptions were used in postulating failures. Were failures of common power systems, i.e. electrical and pneumatic, included? From this review the subcommittee may conclude that an FMEA is effective if the scope and failure assumptions are properly defined.

2. Other countries, namely Canada, include control systems in their licensing criteria. A review of licensing criteria of other countries, with respect to the safety implications of control systems, would provide some background as to how other licensing bodies view the issue.

3. The term "Control Systems" can be viewed narrowly or broadly. In the narrow sense, it can be defined to include only closed loop automatic control systems. In the broad sense, it can be expanded to include instrumentation systems used by the reactor operator to execute manual control actions. I would recommend that the subcommittee

start its work with the narrow definition and eventually expand its scope to include the broader definition.

Sincerely,

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