February 1, 1984

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Docket Nos.: 50-352
and 50-353

Mr. Edward G. Bauer, Jr.
Vice President & General Counsel
Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Dear Mr. Bauer:

Subject: Request for Additional Information - Limerick

The Limerick Safety Evaluation Report (SER) identified control system failures as an outstanding issue. At the time of issuance of the SER, the Philadelphia Electric Company was performing a study to confirm that the consequences of certain control system failures were bounded by the FSAR accident and transient analyses.

By letter dated December 14, 1983, the Philadelphia Electric Company provided the results of a control system failure study in two reports entitled "Control Systems Failure Evaluation Report" and "Common Sensor Failure Evaluation Reports." We have found that addi onal information, as indicated in the enclosure, will be required in order to close this issue.

Please provide the date(s) on which you plan to respond to the above. Any questions concerning this information request should be directed to Mr. Robert E. Martin (301) 492-4937, the Licensing Project Manager.

Sincerely,

Original signed by:

A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing

Enclosure:
As stated

cc: See next page

OFFICE	DL:LB#2/PM	DL:LB#2/BC					
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Limerick

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LIMERICK UNITS 1 & 2
CONTROL SYSTEMS FAILURES
REQUEST FOR ADDITIONAL INFORMATION

To complete the review of the responses to Questions 421.10 and 421.11, the NRC staff requests the following information:

1. Appendix B of the "Control Systems Failures Evaluation Report" provides the criteria for elimination of systems and components from the control systems failure analysis. Regarding these criteria:

   (a) Criterion N6 eliminates systems not used during normal power operations. Start-up, shutdown and refueling systems are not evaluated. It is the staff's concern that control system failures during plant evolutions where water level, pressure or reactivity are changing in response to turbine load or an operator's command may be of greater consequence than failures at steady state conditions. Therefore, the evaluation should be revised, or additional justification provided to support this criterion.

   (b) Criterion N2 eliminates operator actions as a result of indications. It is the staff's concern that operator response to erroneous indication

could exacerbate the control system failure. Therefore, the evaluation should be revised or additional justification provided to support this criterion.

(c) Criterion N5 eliminates systems or components which cannot affect reactor parameters within 30 minutes of the loss. It is the staff's concern that the 30 minute criterion may not allow sufficient time to detect a failure and either restore the failed components to operable status or place the reactor in a safe condition. Therefore, the evaluation should be revised or additional justification provided to support this criterion.

(d) Criterion N8 eliminates safety systems except for their response to conditions brought about by control systems failures. The evaluation should be revised to include a confirmation that where a safety system response was required one additional random, non-mechanistic failure was considered within the responding safety system.

2. Although the criteria for elimination of systems and components from the "Common Sensor Evaluation Report " has not been provided, it appears from statements contained in Section 3.1 of the Report that the criteria from the "Control Systems Failure Evaluation Report" were used. Provide the criteria used for the "Common Sensor Evaluation Report" to eliminate systems and components from the evaluation. If this criteria is the same criteria used for the "Control Systems Failure Report" address those concerns identified in Question 1 above.

3. The NRC staff's question on instrument sensing line failures (421.11) requested confirmation that a single failure in a common instrument line or tap would not defeat required protection system redundancy. Section 4.0 of the "Common Sensor Failure Evaluation Report" which includes a summary of the results of the study does not address this concern. From a review of Table 4.1 it appears that certain failures can disable redundant engineered safety feature functions (e.g., instrument line #3 - manual initiation of MSIV leakage control inoperable). It is the staff's concern that a single failure such as a plugged instrument tap could result in failures of multiple instrument channels. Such failures in combination

with a design basis event may not be bounded by the current FSAR analyses. Therefore, the evaluation should be revised to address the above stated concerns.