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 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva    05000388  
 AUTH.NAME    AUTHOR AFFILIATION  
 KEISER, H.W.    Pennsylvania Power & Light Co.  
 RECIPIENT NAME    RECIPIENT AFFILIATION  
 BUTLER, W.R.    Project Directorate I-2

SUBJECT: Responds to Item 2 of Generic Ltr 89-10, Suppl 3 re motor operated valves. Facility motor operated valves have sufficient capability to isolate against max design basis conditions.

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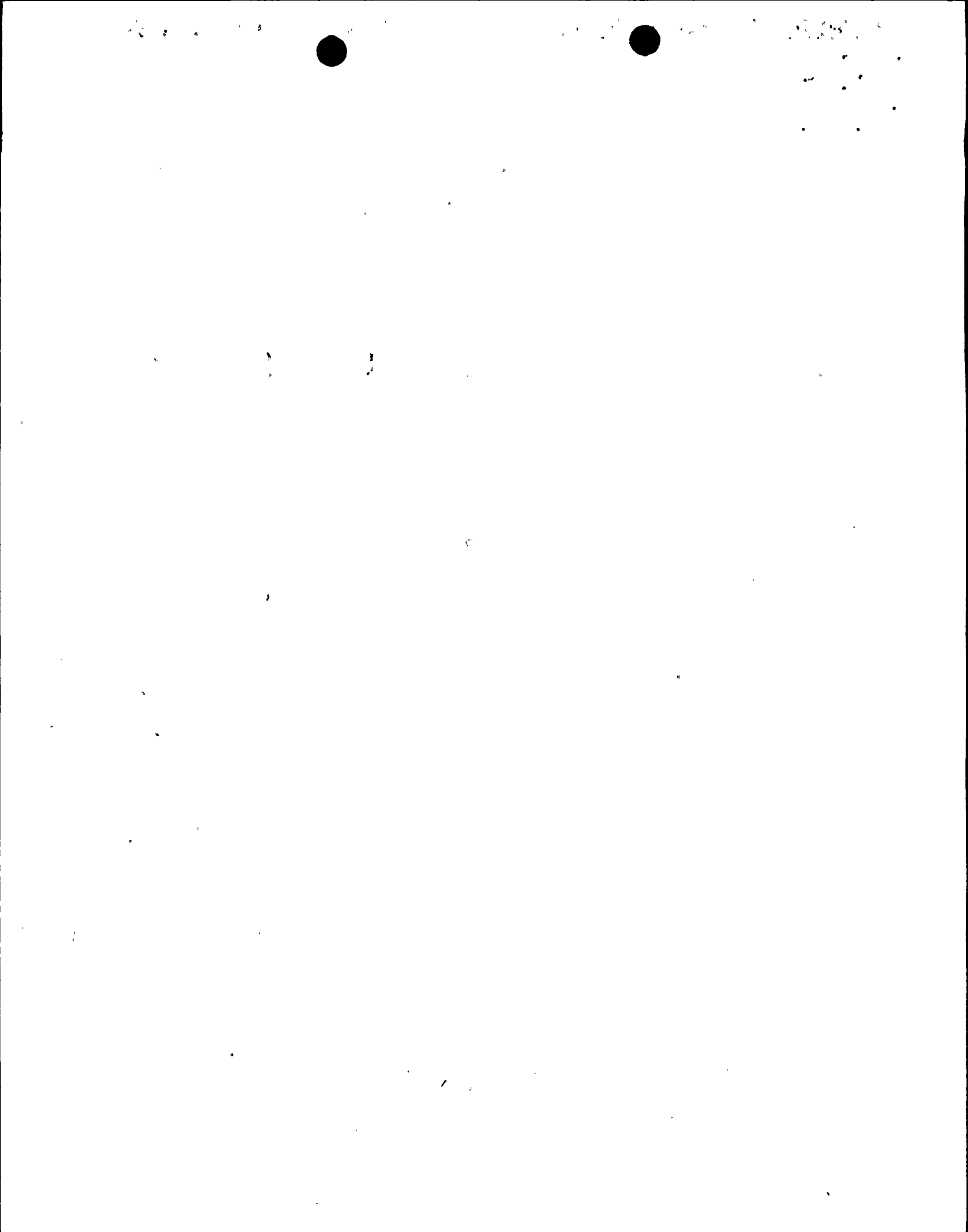
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**Pennsylvania Power & Light Company**

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Harold W. Keiser  
Senior Vice President-Nuclear  
215/774-4194

MAR 14 1991

Director of Nuclear Reactor Regulation  
Attention: Dr. W. R. Butler, Project Director  
Project Directorate I-2  
Division of Reactor Projects  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
GENERIC LETTER 89-10, SUPPLEMENT 3:  
120 DAY RESPONSE  
PLA-3541 FILE R41-2

Docket Nos. 50-387  
and 50-388

Dear Dr. Butler:

The following is Pennsylvania Power & Light Company's response to Item 2 in Supplement No. 3 to Generic Letter 89-10. This Item requested the following:

*"Within 120 days of the receipt of this letter, BWR licensees shall provide to the NRC staff the following:*

- a. *Criteria, reflecting operating experience and the latest test data, that were applied in determining whether deficiencies existing in the HPCI, RCIC and RWCU MOVs described herein, in the MOVs in isolation condenser lines, and in any MOVs considered to be more safety significant, as applicable;*
- b. *The identification of any MOVs found to have deficiencies; and*
- c. *A schedule for any necessary corrective action."*

Pennsylvania Power & Light Company has completed a review of the applicability of the NRC sponsored test results to Susquehanna SES, as well as an MOV capability review for the affected Susquehanna SES valves. This review (see Attachment 1 for details) has concluded that the NRC sponsored testing results are not directly applicable to the motor operated valves installed at Susquehanna SES. Also, the capability review concluded that the subject

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Susquehanna SES MOVs have sufficient capability to isolate against maximum design basis conditions and, therefore, none of these valves were concluded to be deficient.

Based on the above conclusions, the only field activities being planned on an expedited basis will be verification of the as-installed configuration of each of the subject actuators and performance of baseline diagnostic testing. All other aspects of the Susquehanna SES MOV Program will be applied to these MOVs in a time-frame consistent with the requirements of the initial revision of Generic Letter 89-10.

If you have any questions, please contact J.M. Kenny at (215) 774-7904.

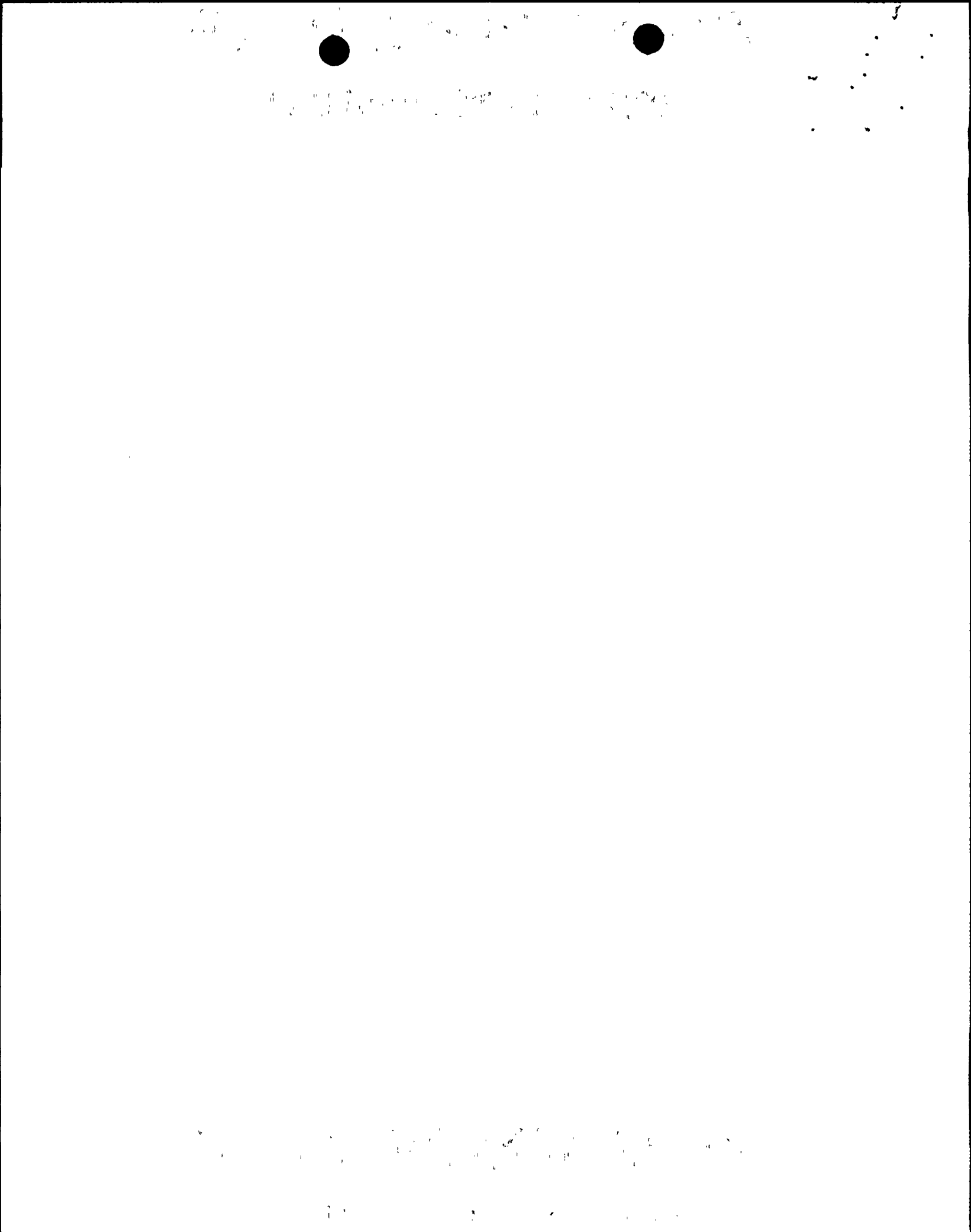
Very truly yours,



H. W. Keiser

Attachment

cc: ~~Document Control Desk (original)~~,  
NRC Region I  
Mr. G.S. Barber, NRC Sr. Resident Inspector  
Mr. J.J. Raleigh, NRC Acting Project Manager



AFFIDAVIT

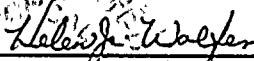
COMMONWEALTH OF PENNSYLVANIA)  
  : SS  
COUNTY OF LEHIGH                  )

I, HAROLD W. KEISER, being duly sworn according to law, state that I am Sr. Vice President - Nuclear of Pennsylvania Power & Light Company and that the facts set forth on the attached response to Generic Letter 89-10, Supplement 3 are true and correct to the best of my knowledge, information and belief.



\_\_\_\_\_  
Harold W. Keiser  
Sr. Vice President - Nuclear

Sworn to and subscribed  
before me this *14<sup>th</sup>* day  
of *March*, 1991.

  
\_\_\_\_\_  
Notary Public

NOTARIAL SEAL  
Helon J. Koles, Notary Public  
City of Allentown, Lehigh County, Pa.  
My Commission Expires Apr. 4, 1993



**SUMMARY OF PENNSYLVANIA POWER AND LIGHT'S ACTIVITIES  
WITH RESPECT TO GENERIC LETTER 89-10 SUPPLEMENT 3**

**I. Scope of Concern**

A study performed by PP&L concluded that there were no motor-operated valves at Susquehanna SES whose failure to isolate a High Energy Line Break (HELB) would be of greater significance than those already identified in Generic Letter 89-10 Supplement 3. Therefore all further activities with respect to the generic letter will be limited to the HPCI and RCIC steam line containment isolation valves and the RWCU suction line containment isolation valves. The associated tag numbers are:

HV-144F001	HV-244F001	RWCU Inboard Isolation
HV-144F004	HV-244F004	RWCU Outboard Isolation
HV-149F007	HV-249F007	RCIC Inboard Isolation
HV-149F008	HV-249F008	RCIC Outboard Isolation
HV-155F002	HV-255F002	HPCI Inboard Isolation
HV-155F003	HV-255F003	HPCI Outboard Isolation

**II. Technical Safety Assessment**

A Technical Safety Assessment was issued on December 12, 1990 addressing the potential for a High Energy Line Break (HELB) at Susquehanna SES and the resulting consequences. This assessment was performed based on the premise that, if applicable, the results of the NRC sponsored testing could lead to indeterminate operability of the applicable motor-operated valves at Susquehanna. The assessment concluded that it was safe to continue to operate the plant pending the evaluation of MOV capabilities and implementation of any required corrective action.

**III. Applicability of Results of NRC Testing to the MOV's Installed at SSES**

A review of the results of the NRC sponsored blowdown isolation tests conducted by Idaho National Engineering Laboratories was performed by PP&L to evaluate the applicability of the results to the particular MOV's installed at Susquehanna SES. Significant conclusions drawn as a result of this review are:





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- 1) All calculations performed by the contractor performing the testing were prepared using the valve internal bore diameter rather than the mean seat diameter. This resulted in nonconservatisms of up to 30% which would have directly contributed to the conclusions that a higher valve factor was required. Use of the mean diameter in these calculations would have resulted in apparent valve factors more in line with the .3 typically used in valve actuator sizing.
- 2) The results of the Phase 1 and Phase 2 testing on the 6 inch Anchor Darling valve were concluded not to be unilaterally applicable to the 6 inch RWCU valves installed at Susquehanna. This conclusion is based on the following:
  - a) Valve A (Phase 1) and Valve 1 (Phase 2) were likely damaged during Phase 1 "qualification" testing as a result of high localized seat face stresses. No internal inspection was performed prior to commencement of blowdown testing. This damage in all likelihood contributed to the high thrust requirements observed during the blowdown tests.
  - b) Many of the Phase 1 tests performed ended with nitrogen flow. The introduction of this gaseous medium would have contributed to the higher than expected thrust requirements.
  - c) The quality of the valve refurbishment performed on the 6-inch Anchor Darling gate valve between Phase 1 testing and Phase 2 testing was considered "below acceptable standards".
- 3) The results of the Phase 2 testing performed on a 10 inch Anchor Darling valve were also concluded to not be directly applicable to the 10 inch Anchor Darling valves at Susquehanna SES on the HPCI system based on the following:
  - a) Again the probability is quite high that valve damage may have occurred during the "qualification" testing thereby rendering the results of the blowdown testing indeterminate.



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#### IV. Capability Review for SSES MOV's

Based on the uncertainties associated with the results of the NRC sponsored testing, it was concluded that there was no over-riding reason to use a valve factor other than .3 in the actuator sizing calculations provided the mean seat diameter is used.

The results of the MOV capability review were:

- 1) Using a valve factor of .3 and the mean seat diameter all of the subject MOV's will be capable of complete isolation against HELB conditions. This conclusion is based on as-installed MOV configuration.
- 2) Regardless of torque switch settings, the MOV's would be capable of closing at least 97% based on the specified close direction torque switch bypass setpoint.

#### V. Further Actions

In order to further insure the isolation capability of the subject valves the following actions will be performed on each MOV prior to May 12, 1992:

- 1) The close direction torque switch bypass setting will be verified and/or adjusted as necessary.
- 2) Torque switch settings will be changed as deemed appropriate to provide additional thrust margin.
- 3) Static diagnostic testing will be performed to verify switch settings and adequate thrust development.