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 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv 05000388
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 KEISER, H. W. Pennsylvania Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 RUSSELL, W. T. Region 1, Office of Director

SUBJECT: Part 21 rept re seismic design of Diesel Generator E.
 Initially reported on 870415. Complete HVAC sys being
 reanalyzed using conservative assumptions to provide
 assurance that sys can withstand earthquakes.

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Pennsylvania Power & Light Company

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APR 24 1987

Harold W. Keiser
Vice President-Nuclear Operations
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Mr. W. T. Russell
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631 Park Avenue
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SUSQUEHANNA STEAM ELECTRIC STATION
10CFR21 REPORT
PLA-2846 FILE R41-2/A17-10

Docket Nos. 50-387
and 50-388

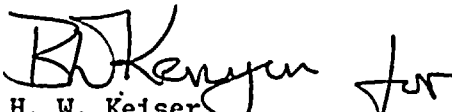
Dear Mr. Russell:

The purpose of this letter is to provide information pursuant to 10CFR21 concerning a condition involving PP&L's fifth diesel generator at the Susquehanna SES. Initial telephone notification was provided by our Mr. R. M. Harris to your Mr. J. Wiggins on April 15, 1987. Permission to delay this written notification until April 24 was granted by Mr. Wiggins.

The fifth diesel is not yet operational. PP&L has no information that would indicate that this condition would affect the operating units or any other nuclear facility.

Details are provided in the attached report. If you have any questions, please contact Mr. R. M. Harris at (215) 770-7862.

Very truly yours,


H. W. Keiser
Vice President - Nuclear Operations

Attachment

cc: NRC Document Control Desk (original)
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Mr. M. C. Thadani - NRC Project Manager

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10CFR21 REPORT - SEISMIC DESIGN
OF THE "E" DIESEL GENERATOR AT SUSQUEHANNA SES

PROBLEM

The safety-related heating and ventilation system (H&V) of the "E" diesel generator facility at Susquehanna SES could not be determined with reasonable confidence to be able to withstand the effects of a safe shutdown earthquake (SSE) or operating basis earthquake (OBE).

BACKGROUND

The "E" diesel generator facility is being constructed at the Susquehanna SES for use as a substitute diesel in the event that one of the four required common diesels fails. Facility testing is underway with an expected in-service date of May, 1987. The facility design and construction were contracted to Gibbs & Hill, Inc. (G&H) and DRAVO Construction Incorporated (DCI) respectively. The plenum, ductwork and duct supports for the heating and ventilation system were designed and fabricated by Peabody & Wind (P&W) under subcontract to G&H. The structural design of the heating and ventilation system was performed by Nuclear Qualification Services (NQS) under subcontract to P&W. Initial indications of problems with the H&V design were identified in late 1986. Ensuing investigations led to discovery of additional deficiencies.

IDENTIFIED DEFICIENCIES

The following significant deficiencies in the design and installation of safety related HVAC systems have been identified.

- 1) The design of the ductwork and supports contained nonconservative assumptions relative to the duct stiffness and mass.
- 2) These nonconservative assumptions resulted in unrealistically low stress levels which lead the designer to conclude that a detailed design of all ductwork and duct supports was not required. As a result, only 40% of the total duct system was analyzed and no analysis was performed to address the connections (welds or bolts) for the ductwork, ductwork supports, or the connection of the ductwork to the supports.
- 3) The design control and as-built reconciliation process was not properly implemented.

SAFETY HAZARD

The "E" diesel generator has been designed to substitute for any one of the four common diesels in the event one should be inoperable. The Susquehanna SES design basis requires at least three diesels to remain operable following certain design basis events. If the "E" diesel were to fail when called upon following a seismic event with loss of off-site power, a single failure in one other diesel would leave an insufficient number of diesels operable.



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CORRECTIVE ACTION

As-built drawings for the H&V ductwork and duct supports have been prepared. The complete HVAC system is being reanalyzed using conservative assumptions which will provide the required assurance that the H&V system can withstand the individual effects of a SSE and OBE.

To-date, the following results have been obtained. (All numbers are approximate.)

- 1) As a result of the as-built reconciliation, approximately 80 drawing discrepancies were identified.
- 2) As a result of the reanalysis, two new supports needed to be added, one missing support may need to be added, and approximately 60 of the total of 125 duct supports needed to be modified with additional welds or braces.

The expected in-service date for the "E" diesel is May, 1987. Prior to declaring the facility operable, the seismic qualification of the H&V system and all identified modifications will be completed.

The following information was obtained from the files of the [redacted] and is being furnished to you for your information. It is to be used only for the purpose for which it was obtained and is not to be disseminated outside of your office.

[redacted] advised that [redacted] had been observed at [redacted] on [redacted] at [redacted].

[redacted] advised that [redacted] had been observed at [redacted] on [redacted] at [redacted].

[redacted] advised that [redacted] had been observed at [redacted] on [redacted] at [redacted].

[redacted] advised that [redacted] had been observed at [redacted] on [redacted] at [redacted].

[redacted] advised that [redacted] had been observed at [redacted] on [redacted] at [redacted].