Station Support Department

10CFR50.54(f)

PECO NUCLEAR
A Unit of PECO Energy

PECO Energy Company
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

July 24, 1997

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

SUBJECT: Limerick Generating Station, Units 1 and 2
Response to Request for Additional
Information Regarding Review of Individual
Plant Examination of External Events

REFERENCES:

1. Letter from F. Rinaldi, U.S. NRC, to G. A. Hunger, PECO Energy Company, dated December 22, 1995.
2. Letter from G. A. Hunger, Jr., PECO Energy Company, to U. S. NRC, dated June 28, 1996.
3. Letter from F. Rinaldi, U. S. NRC, to G. A. Hunger, PECO Energy Company, dated November 12, 1996.
4. Telecon between F. Rinaldi and J. Chen, U. S. NRC, and D. Helker and J. Phillabaum, PECO Energy Company, on June 11, 1997.

Dear Sir:

Reference 1 requested additional information that was provided by Reference 2 regarding review of the Limerick Generating Station (LGS), Units 1 and 2, Individual Plant Examination of External Events (IPEEE). Reference 3 concluded that our decision to change the scope for the seismic events portion of the IPEEE is not justified and that the staff will attempt to obtain any missing information through a request for additional information (RAI). Reference 4 served to clarify that in lieu of a letter transmitting an RAI, PECO Energy Company should provide all the information requested by seismic question 1 of Reference 1.

Attachment 1 to this letter provides a restatement of the question followed by our response.

If you have any questions, please contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr.,
Director - Licensing

Enclosures: Affidavit, Attachment 1

cc: H. J. Miller, Administrator, Region I, USNRC
N. S. Perry, USNRC Senior Resident Inspector, LGS
R. R. Janati, Commonwealth of Pennsylvania

COMMONWEALTH OF PENNSYLVANIA:

: SS

COUNTY OF CHESTER :

J. B. Cotton, being first duly sworn, deposes and says:

That he is Vice President of PECO Energy Company, the Applicant herein; that he has read the enclosed response to the NRC request for additional information concerning the Limerick Generating Station Individual Plant Examination of External Events, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

John B. Cotton

Vice President

Subscribed and sworn to

before me this 24th day

of July 1997.

Carol J. Walton

Notary Public

NOTARIAL SEAL
CAROL A. WALTON, Notary Public
City of Philadelphia, Phila. County
My Commission Expires May 28, 2001

Attachment 1

Docket Nos. 50-352
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Response to Request for Additional Information
Limerick Generating Station, Units 1 and 2
Individual Plant Examination of External Events (IPEEE)

Seismic Analysis

Question

1. Limerick has been identified in NUREG-1407 as a plant belonging to the 0.3g focused-scope seismic margin assessment bin; hence, the reduced-scope evaluation at 0.15g, as performed in the LGS seismic IPEEE, does not conform to the review guidance in NUREG-1407 and Supplement 4 to Generic Letter (GL) 88-20. Accordingly:

   a. Provide a list of structures, systems, and components (including Safe Shutdown Equipment List (SSEL) items and containment systems equipment) that did not screen at 0.3g.

   b. Provide the basis for disposition of each such item at 0.3g. Indicate if the Severe Accident Risk Assessment (SARA) capacity calculations continue to be valid; discuss any other basis that has been used for component disposition, including any results of new calculations.

   c. Provide an evaluation of masonry/block walls that may influence the performance of success path components.

   d. Provide an evaluation of flat-bottomed tanks, as requested in NUREG - 1407 and GL 88-20 for focused - scope plants.

Response

   a. The Seismic Review Team (SRT) concluded that the equipment, structures and distributed systems at Limerick Generating Station (LGS) are seismically very rugged. This is attributed to the conservative nature of the original design.

      All components on the Success Path Component List (SPCL) were successfully screened-out at 0.3g except for two groups, those listed in Table 3.1.4-3 of the original IPEEE submittal report and a second group listed below. As summarized in Table 3.1.4-3 of the original IPEEE submittal report, several components were identified as having housekeeping and maintenance issues. Improvements as stated in Section 8.0 of the original IPEEE submittal have been made to the plant to resolve these issues. The remaining components that did not screen at 0.3g are:

Equipment Type	Room/Area	Description of Concern
Inverter 2AD160 2BD160	453	Anchorage - bending of anchor bolts due to thick shim pack.
Transfer Switch 20NAD160 20NBD160	453	Laterally supported by inverters 2AD160 and 2BD160.
Diesel Generator Starting Air Tank 2A1T558, 2A2T558 2B1T558, 2B2T558 2C1T558, 2C2T558 2D1T558, 2D2T558	 315A 315B 315C 315D	 Lack of flexibility in attached safety valve line.
Valves HV-51-2F041A HV-51-2F041C	473	Seismic spatial interaction

b. Housekeeping and maintenance concerns identified in Table 3.1.4-3 of the original IPEEE submittal report have all been resolved to eliminate the concern. The improvements that were made assure that identified concerns will not affect the plant at the 0.3g review level earthquake (RLE).

The remaining SSC that did not screen out at 0.3g have been dispositioned as follows:

1. Inverters (2AD160, 2BD160) - The inverters were evaluated and the resulting high confidence of low probability of failure (HCLPF) is 0.2g peak ground acceleration (pga).

   An additional review of the inverters was made, and it has been determined that their intended SPCL function is to provide power for main steam relief valve (MSRV) position indication. This review has concluded that the opening of MSRVs can also be determined from the resulting reactor pressure decrease and suppression pool temperature increase. The instrumentation for these parameters is on the SPCL.

   Therefore, it is concluded that the inverters are not critical to plant shutdown, and the as-found anchorages are acceptable. Consequently, the calculated HCLPF for the static inverters does not represent an impediment to seismic safe shutdown at the 0.3 g RLE.

2. Transfer switches (20NAD160, 20NBD160) -The transfer switches are laterally supported by the inverters (2AD160, 2BD160) and therefore also have a HCLPF of 0.2g pga.

   The transfer switches are acceptable in the as-found condition as discussed above for the inverters.

3. Diesel Generator starting air tanks (2A1T558, 2A2T558, 2B1T558, 2B2T558, 2C1T558, 2C2T558, 2D1T558, 2D2T558) - The seismic displacement at the top of the tank due to the 0.3g RLE was calculated to be 0.006 inches. This is very small and it is judged that the relief line and tank nozzle will not fail under this displacement. Therefore, the diesel generator starting air tanks have been assigned a HCLPF of at least 0.3g and are acceptable as found.

4. Valves (HV-51-2F041A, HV-51-2F041C) - HV-51-2F041A has a ½ inch clearance between the conduit inlet to the limit switch electrical box and a vertical support structural member. It was determined that the seismic displacement due to the SSE (0.15g pga) is approximately equal to the ½ inch gap and is acceptable. Due to the 0.3g RLE, valve displacement is estimated to be 0.832 inches which is larger than the gap. The consequences of this impact have been qualitatively evaluated and are judged to not have any credible, adverse effects on the safety function of this check valve. Therefore, the valve is assigned a HCLPF of 0.3g.

   HV-51-2F041C has a 1½ inch clearance between the conduit inlet to the limit switch electrical box and a vertical support structural member. The displacement due to the 0.3g RLE for this valve is estimated to be 1.55 inches which is approximately equal to the measured gap. Therefore, this valve is assigned a HCLPF of 0.3g and is acceptable as found.

As stated in Section 9 of the original IPEEE submittal report, the LGS Severe Accident Risk Assessment (SARA) was reviewed and compared to the IPEEE seismic analysis. However, SARA results were not used in determining any of the IPEEE seismic analysis conclusions. For the comparison, median ground acceleration capacities listed in Table 3-1 of the SARA Main Report were converted to HCLPFs. Components that are also on the IPEEE SPCL have HCLPFs at least 0.3g, which is consistent with the conclusions of the seismic margins assessment screening in the IPEEE. This shows that the two studies reached similar conclusions. The SARA capacity calculations have not been maintained, and the SARA is not used as the basis for any design/licensing calculations.

c. The SRT walked down all of the masonry/block walls that had the potential to influence the performance of success path components. All masonry/block walls with the potential to influence components on the SPCL have a HCLPF of at least 0.3g.

d. There are no flat-bottomed tanks on the SPCL, and therefore, none were structurally evaluated for the IPEEE. Furthermore, there are no safety related flat-bottomed tanks at LGS. As stated in Table 3.2-1 of the LGS Updated Final Safety Analysis Report, the Unit 1 and Unit 2 Condensate Storage Tanks and the Refueling Water Storage Tank are Seismic Category II.

   Section 5.2.2 of the original IPEEE submittal report stated that flooding of safety - related structures, systems and components (SSC) will not occur due to a failure of the Unit 1 Condensate Storage Tank (CST), Unit 2 CST, the Refueling Water Storage Tank, and the Auxiliary Boiler Fuel Oil Tank, because the contents of these tanks would be contained within seismic Category II A earth dikes. Seismic Category IIA SSC are designed so that their failure cannot adversely affect plant safety features during and after an SSE. The earth dikes are designed to maintain their structural integrity during an SSE event. These dikes are designed to contain 110% of the contents of the tank that they enclose.

   In accordance with the guidance provided in Supplement 5 to Generic Letter 88-20, soil related failures of earthen dikes at 0.3g were not evaluated. Therefore, the dikes are adequate in their as-designed conditions.