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January 18, 2001

Docket No. 50-353
License No. NPF-85

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

Subject: Limerick Generating Station, Unit 2
Updated Analysis of Core Shroud Structural Integrity

Reference: 1) Letter from J. A. Hutton (PECO Energy Company) to Nuclear
Regulatory Commission (NRC), dated October 27, 2000
2) Letter from J. A. Hutton (PECO Energy Company) to Nuclear
Regulatory Commission (NRC), dated January 5, 2001

Dear Sir/Madam:

In the Referenced letters, PECO Energy Company submitted plant specific analyses and supplemental information which updated previous evaluations of the Limerick Generating Station (LGS), Unit 2, core shroud structural margins by considering plant operation under Hydrogen Water Chemistry/Noble Metals Chemical Application conditions. Based on additional discussions with the NRC on January 17, 2001, attached is correspondence referenced in the General Electric Nuclear Energy analysis contained in the Reference 1 letter.

Please contact us if you have any questions.

Very truly yours,



James A. Hutton
Director - Licensing
Mid-Atlantic Regional Operating Group

Attachment

cc: H. J. Miller, Administrator, USNRC, Region I (w/attach)
A. L. Burritt, USNRC Senior Resident Inspector, LGS (w/attach)

A001

ATTACHMENT

**Internal General Electric Nuclear Energy Memorandum from S. Wang to M. L. Herrera,
dated April 10, 1995**

April 10, 1995

cc: D. R. Rogers
DRF A00-05850

To: Marcos L. Herrera

Subject: **ESTIMATED FLUENCE AT LIMERICK 1 SHROUD WELDS**

An estimation of fast neutron fluence ($E > 1\text{MeV}$) at the Limerick Unit 1 shroud welds is provided below.

This estimation is based on calculated results of beltline flux distribution at:

Peach Bottom Unit 2 based on cycle 7 core data, and
Susquehanna Unit 1 based on cycle 6 core data.

These two plants are both BWR/4s of the same size, power level (before uprate) and core configuration as Limerick 1. It is reasonable to assume that the flux patterns of these plants are similar also. The peak full power (3293 MWt) flux at the Limerick Unit 1 shroud surface is estimated to be $2.3e12$ n/sec-cm. Using the axial flux profile generated for Peach Bottom 2, flux level at each weld at Limerick is estimated by assuming the flux drop-off is the same at same elevations on either plant. The results are shown in Table 1.

Estimated fluence at the end of Cycle 6 (1R06) at 1/26/96 is based on 7.97 EFPY at rated power 3293 MWt. Projected fluence estimation at EOC Cycle 8 (1R08) at 3/3/2000 is based on 11.75 EFPY and assumed uprate power 3458 MWt for Cycles 7 and 8. The result of estimated fluence is presented in Table 2.

Considering the uncertainties associated with flux calculations; plus the uncertainty inherent with generalizing data among different plants, it should be emphasized that estimation given here is only useful for scoping the order of magnitude of peak fluence. It is not meant for design analysis applications.

Sylvia Wang
Engineering & Licensing Consulting Service
M/C 469 Ext -1594

TABLE 1

**LIMERICK UNIT 1 Shroud
Horizontal Weld Full Power Flux Estimations**

<u>weld</u>	<u>Rel Flux*</u>	<u>Flux (3293 MWt)</u>	<u>Flux (3458 MWt)</u>
H3	0.303	7.0E+11	7.3E+11
H4	0.998	2.3E+12	2.4E+12
H5	2.20E-04	5.1E+08	5.3E+08
H6	1.04E-04	2.4E+08	2.5E+08
H7	<<8.0E-7	<<1.8E+6	<<1.9E+6

* Estimated peak flux for 3293 MWt at shroud surface = 2.3×10^{12} n/cm²-sec

TABLE 2

**LIMERICK UNIT 1 Shroud
Horizontal Weld Fluence Estimations**

<u>weld</u>	<u>EOC Cycle 6 Fluence*</u>	<u>Cycle 7&8 Fluence**</u>	<u>EOC Cycle 8 Fluence***</u>
H3	1.8E+20	8.7E+19	2.6E+20
H4	5.8E+20	2.9E+20	8.6E+20
H5	1E+17	6E+16	2E+17
H6	6E+16	3E+16	9E+16
H7	<<5E14	<<2E14	<<7E14

* Full power flux at 3293 MWt times 7.97 EFPY

** Full power flux at 3458 MWt times (11.75-7.97) EFPY

*** Sum of Columns 2 & 3.