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August 17, 1983

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Limerick Generating Station, Units 1 & 2
Core Performance Branch
Request for Additional Information

Reference: PECO and NRC Conference Call dated
July 8, 1983

File: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

The attached additional information requested by the Core Performance Branch reviewer addresses peak cladding temperature margin deterioration due to the increased fission gas release at high burnup.

Sincerely,

RJS/gra/97

Copy to: See Attached Service List

50-352,353

8308220290 830817
PDR ADOCK 05000352
A PDR

BOO!
1/1

cc: Judge Lawrence Brenner (w/enclosure)
Judge Richard F. Cole (w/enclosure)
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Atomic Safety and Licensing Board Panel (w/enclosure)
Docket and Service Section (w/enclosure)

DRAFT SAFETY EVALUATION REPORT
CORE PERFORMANCE BRANCH

Additional Information: LOCA/ECCS PCT Margin Deterioration
 Due to Increased FGR at High Burnup

Concern

In reference 1 telecon concern was expressed regarding the erosion of the Limerick Peak Clad Temperature (PCT) margin by the reduction in gap heat transfer capability caused by increased Fission Gas Release (FGR) at High Burnup. Philadelphia Electric was referred to reference letters 2 and 3, and was requested to make a statement, similar to that contained in reference 4, confirming their applicability to the Limerick design.

Response

This issue was addressed generically in reference 5 letter. Positions stated in that letter, which are based upon the material contained in reference 2 and 3 letters, are applicable to the Limerick design. Limiting plant results for a BWR/4 using P8x8R fuel assemblies are tabulated in the attached table.

The table shows that the change in PCT due to application of the NRC fission gas release correction factors to the current GE model increases as exposure increases above 20,000 MWd/STU (22,000 MWd/MT). However, current ECCS calculations for a BWR/4 limiting plant show that there is margin to the licensing limit of 2200°F which exceeds the Δ PCT increase due to the FGR correction factor at all exposures (See column 3 of the attached table). Therefore, even accounting for the increased FGR there is still overall margin to the licensing limit as shown in column 4 of the table.

References

- 1) Telecon, R. O. Meyer (NRC) and R. J. Stipceovich (PECO), dated July 8, 1983.
- 2) Letter, R. E. Engel (GE) to T. A. Ippolito (NRC), "Extension of Emergency Core Cooling System Performance Limits," May 6, 1981.
- 3) Letter, R. E. Engel to T. A. Ippolito, "Additional Information Regarding Extension of Emergency Core Cooling System Performance Limits," May 28, 1981.
- 4) Letter, L. F. Dale (MP&L) to H. R. Denton (NRC), dated July 24, 1981.
- 5) Letter, R. M. Pifferetti (GE) to R. L. Tedesco (NRC), "Fission Gas Release from Fuel at High Burnup," August 21, 1981.

GENERAL ELECTRIC ASSESSMENT OF
NRC FISSION GAS CORRECTION FACTOR
FOR LIMITING CASE BWR/4
WITH P8x8R FUEL TYPE

<u>EXPOSURE</u> <u>(GWd/MT)</u>	<u>PCT INCREASE</u> <u>WITH NRC</u> <u>CORRECTION</u> <u>FACTOR (°F)</u>	<u>CURRENT</u> <u>LIMITING PLANT</u> <u>MARGIN TO 2200°</u> <u>(°F)</u>	<u>OVERALL</u> <u>MARGIN</u> <u>(°F)</u>
22	10	30	20
28	30	80	50
33	70	140	70
39	130	260	130
44	200	340	140
50	240	440	200