



PECO NUCLEAR

A Unit of PECO Energy

NRC GL 96-06

PECO Energy Company
200 Exelon Way
Kennett Square, PA 19348

October 13, 2000

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Limerick Generating Station, Units 1 and 2
Response to NRC Request for Additional Information (RAI) Regarding Generic
Letter 96-06

Reference: PECO Letter to the USNRC Document Control Desk, "Limerick Generating
Station, Units 1 and 2, Response to NRC Request For Additional Information
(RAI) Regarding Generic Letter 96-06", dated July 30, 1998

Dear Sir/Madam:

The reference letter provided information requested by NRC involving PECO Energy Company's original response to Generic Letter 96-06 "Assurance of Equipment Operability and Containment Integrity During Design-Basis Accident Conditions", for Limerick Generating Station, Units 1 and 2. During a teleconference with the NRC on August 10, 2000, the NRC requested additional information related to the reference letter with regard to the physical arrangement of the drywell cooler tubes and return lines and the procedures used for re-establishment of drywell cooling following an event. Attached to this letter is the requested additional information. The required affidavit is also attached.

If you have any questions regarding this submittal, please contact us.

Very truly yours,

J. A. Hutton
Director - Licensing

cc: H. J. Miller, Administrator, Region I, USNRC
A. L. Burritt, USNRC Senior Resident Inspector, LGS
R. R. Janati, Commonwealth of Pennsylvania

A072

COMMONWEALTH OF PENNSYLVANIA :

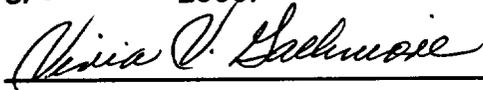
: SS

COUNTY OF CHESTER :

J. W. Langenbach, 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 request for additional information regarding Generic Letter 96-06 "Assurance of Equipment Operability and Containment Integrity During Design-Basis Accident Conditions," for Limerick Generating Station, Units 1 and 2, Facility Operating License Nos. NPF-39 and NPF-85, 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.


James W. Langenbach – Vice President

Subscribed and sworn to
before me this *12th* day
of *October* 2000.





Notarial Seal
Vivia V. Gallimore, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires Oct. 6, 2003
Member, Pennsylvania Association of Notaries

ATTACHMENT

NRC Request:

Provide information involving the physical arrangement of the drywell unit cooler tubes and return lines at Limerick Generating Station (LGS), Units 1 and 2. Provide information involving procedures used for the restoration of drywell cooling following a Loss of Coolant Accident (LOCA) event.

PECO Energy Response:

As stated in the reference letter, LGS Units 1 & 2 are not susceptible to the "immediate response waterhammer" issue of Generic Letter 96-06 because the drywell chilled water system (DCWS) automatically isolates on a confirmed LOCA signal and the DCWS pumps do not receive any automatic restart signal following a design basis LOCA coincident with a loss of offsite power (LOOP).

Currently, the LGS emergency procedures (EPs) direct operators to maximize drywell cooling if the drywell temperature cannot be maintained below the maximum normal operating temperature of 135°F. This procedural step directs operators to assess the availability of the drywell cooling system and to re-establish drywell cooling if available. This would include opening the DCWS primary containment isolation valves (PCIVs) and restarting the DCWS pumps and chillers.

The reference letter addressed the potential for a waterhammer event upon the EP-directed action of re-establishing drywell cooling and concluded that there is no potential for this "long-term response waterhammer" event. This evaluation was based on the containment temperature profile for a large break LOCA event, which peaks at 288°F at 9 seconds and then reduces to 275.8°F at 34 seconds and to 208°F at 10 minutes (LGS UFSAR Figure 6.2-4A). As identified in the reference letter (Response to Question 5), a containment temperature of 275°F was assumed for this evaluation, since it is not expected that operators would act to reestablish drywell cooling within the first 34 seconds following a Design Basis Accident LOCA.

A small break LOCA could result in drywell temperatures as high as 340°F; however, this drywell temperature increase would be much slower, and operators would re-establish drywell cooling, if available, before such temperatures are reached, or would initiate containment sprays in accordance with existing EPs. However, for additional assurance that the "long-term response waterhammer" does not occur in this unlikely situation, the following additional information is provided:

1. The physical arrangement of the drywell unit coolers and return lines is favorable. The coils internal to the unit coolers and the return lines from the unit cooler to the containment penetration are such that a steam bubble generated within the unit cooler will propagate to the penetration, thus being cooled by the colder water in the return lines and condensing. Thus, for a steam bubble to exist at the time of EP-directed re-establishment of drywell cooling, the entire DCWS return line must be heated to the saturation temperature for the pressure in the line.

2. Procedures are being revised to re-establish drywell cooling in such a way that any steam in the lines is allowed to condense or evacuate the lines and thus further prohibit the "long-term response waterhammer" event. These procedure revisions are expected to be completed by February 28, 2001.

In summary, since the LGS design includes a single-failure proof containment isolation of the DCWS lines and does not include any automatic restart of the DCWS pumps, LGS Units 1 & 2 are not susceptible to the "immediate response waterhammer" event. Should a steam bubble be generated in the cooler tubes prior to isolation of the DCWS lines, the bubble would propagate upwards along the tubes and into the cooler water of the DCWS return lines and collapse. The procedural changes discussed above will provide additional assurance that a "long-term response waterhammer" does not occur upon re-establishment of drywell cooling.
