Station Support Department

NRCB 96-03

PECO NUCLEAR
A Unit of PECO Energy

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January 20, 1998

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
Request to Extend Deferral Period for Implementation of ECCS Suction Strainer Modification Activities Associated With NRC Bulletin 96-03

Dear NRC Officials:

On May 6, 1996, the NRC issued Bulletin 96-03, "Potential Plugging of Emergency Core Cooling Suction Strainer by Debris in Boiling Water Reactors." This Bulletin requested that all Boiling Water Reactor (BWR) licensees institute appropriate procedural measures and plant modifications to minimize the potential for clogging of the Emergency Core Cooling System (ECCS) suppression pool suction strainers by debris generated during a Loss of Coolant Accident (LOCA). Bulletin 96-03 requested that the "requested actions" associated with this Bulletin be implemented by the end of the first refueling outage starting after January 1, 1997. PECO Energy evaluated its options in response to this Bulletin, and committed to install new large-capacity, passive, pump suction strainers (i.e. Option 1 in NRCB 96-03) at Limerick Generating Station (LGS), Units 1 and 2. In accordance with our commitment, PECO Energy will be installing the new strainers on only the Residual Heat Removal (RHR) and Core Spray (CS) system pump suction lines at LGS, Units 1 and 2. The proposed plant modification is designed to ensure that the effects of Design Basis Accident (DBA) LOCA generated debris will not adversely impact the ability of the ECCS from performing its design function.

By letter dated September 6, 1996, PECO Energy requested a deferral for installation of the new strainers for LGS, Unit 2, since adequate time was not available to complete the required engineering and procurement activities to support strainer installation during the January 1997 Fourth Refueling Outage (2R04). The deferral request proposed delaying the ECCS suction strainer modification activities at LGS, Unit 2, until the Fifth Refueling Outage (2R05), which is scheduled for April 1999. In lieu of installing new ECCS pump suction strainers during 2R04, and in support of this deferral request, PECO Energy planned to take various compensatory actions. These actions included: suppression pool cleaning/desludging, sludge and water sampling, containment coating inspection, and trending of ECCS pump suction strainer differential pressure (dP) over the next fuel cycle.

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By letter dated January 6, 1997, the NRC responded to our request for deferral from implementing the "requested actions" associated with Bulletin 96-03 for LGS, Unit 2. The NRC indicated that the compensatory measures that we planned to implement, as documented in the September 6, 1996 letter, were an acceptable basis for granting the deferral. However, as an approved condition of the deferral, the NRC expects the new ECCS suction strainers for LGS, Unit 2, to be installed and made operational on or before December 31, 1998.

To date, PECO Energy has completed installation of the new large-capacity, passive, ECCS pump suction strainers at its Peach Bottom Atomic Power Station (PBAPS), Unit 3, facility during its last refueling outage in October 1997. We are currently planning to install the new strainers at LGS, Unit 1, during its April 1998 refueling outage, and at the remaining PBAPS, Unit 2, facility during its October 1998 refueling outage. PECO Energy is continuing to devote considerable resources to support the design, procurement, and fabrication of the new strainers to facilitate installation of the plant modifications at LGS, Units 1 and 2, and PBAPS, Unit 2, within the acceptable time period. Based on our experience with regard to the planning, design, fabrication, and installation activities associated with this modification, it will be extremely difficult to complete the modification work at LGS, Unit 2, during 1998, since this modification work is planned for two (2) other PECO Energy nuclear units (LGS, Unit 1, and PBAPS, Unit 2) during 1998.

PECO Energy requests that the installation of the new ECCS pump suction strainers for LGS, Unit 2, be deferred until 2R05 which is scheduled for April 1999. Granting of this deferral would only extend the original deferral period by approximately four (4) months (i.e., December 1998, to April 1999). The NRC previously acknowledged that the probability of the initiating event occurring (i.e., Design Basis Accident LOCA) is relatively low over the life of the plant. The risk of the DBA LOCA occurring during the extended deferral period is considered insignificant when compared to that over the life of the plant. In addition, allowing the unit to continue to operate until its next scheduled refueling outage (2R05) also reduces risk since a premature shut down and startup near the end of the fuel cycle could be avoided. Furthermore, the NRC has already granted deferrals from implementing the "requested actions" of Bulletin 96-03 for some plants (e.g., Hope Creek) until 1999.

In support of our request to extend the deferral period for LGS, Unit 2, from December 1998 until April 1999, the following actions have been completed or will continue to be performed until the new strainers are installed.

During the last LGS, Unit 2, refueling outage (2R04), which was performed in January 1997, the following activities were performed in the suppression pool and drywell areas:

A suppression pool "as found" inspection was conducted prior to commencing any cleaning activities to estimate the level of debris/sludge accumulation. This inspection included a visual examination of the accessible horizontal and vertical surfaces of the suppression pool, ECCS suction strainer surfaces, and the Safety Relief Valve (SRV) tee quencher areas. The inspection results were consistent with the expectations prior to outage (2R04), concerning the amount of debris/sludge that would be found. General suppression pool conditions were considered good with little sludge accumulation present. There was minimal sludge accumulation on some of the ECCS suction strainers. The SRV tee quencher areas were in excellent condition with only a light dusting of sludge on the horizontal surfaces.

Samples of water and sludge from the suppression pool were obtained and analyzed for the presence of fibrous material. The results of the sampling revealed the existence of microscopic fibers, but none large enough to interfere with strainer performance. The divers also found a small amount of visible fibers, which were removed.

Several weeks prior to the beginning of the outage (2R04), and during the outage, suppression pool water clean-up/filtration operations were performed, which improved water quality. The water volume in the pedestal area was also filtered. Underwater visibility at the end of 2R04 was approximately 25 feet with all submerged areas clearly visible.

During the outage (2R04) a thorough suppression pool cleaning and desludging was conducted. All accessible areas above the water, including the catwalk area, were evaluated for cleanliness and vacuumed. The areas inside the downcomers were inspected and a minimal amount of floating debris was removed. Horizontal surface areas of the suppression pool were vacuumed to remove any sludge accumulation. The submerged vertical surfaces were sludge free, and therefore, did not require vacuuming.

In conjunction with suppression pool cleaning activities during the outage (2R04) a liner coating inspection was performed. The results of this inspection were satisfactory and revealed some minimal pitting of the liner coating. All identified pit locations were recorded. These pit locations will be re-examined and repaired, as necessary, during a future LGS, Unit 2, outage.

Upon completion of all work in the suppression pool at the end of the outage (2R04), a final closeout inspection was conducted. The "as-left" pool condition/cleanliness was considered excellent. There were no appreciable deposits of sludge material remaining or foreign material identified. The water clarity was excellent. The suction strainer, tee quenchers, and pool bottom leak chases were all visible from the catwalk.

During the outage (2R04), drywell piping insulation inspections were performed for the purpose of identifying insulation material that was damaged or not properly secured. The results of this inspection were satisfactory, and any damaged or unsecured piping insulation material was repaired.

All non-metallic tags that were identified on equipment in the drywell were replaced with metallic tags, and no non-metallic tags were identified in the suppression pool area.

A final closeout inspection of the drywell area was performed at the end of the outage (2R04) to ensure that equipment and material used during the outage was removed and that no foreign material remained.

Foreign Material Exclusion (FME) controls were established and maintained in support of all work activities in the suppression pool and drywell areas. The Unit 2 suppression pool and drywell areas have not been entered since the beginning of this fuel cycle, and FME control has been maintained.

In support of this request, PECO Energy will continue to evaluate and trend ECCS pump suction strainer dP data, as previously committed. Suppression pool water chemistry samples that are taken will continue to be monitored for the presence of fibrous material. These activities will continue to be performed at LGS, Unit 2, until the new strainers are installed. To date, no adverse trends have been identified from evaluating and trending pump dP data and from suppression pool water chemistry samples.

If you have any questions or require additional information, please do not hesitate to contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr.
Director - Licensing

cc: H. J. Miller, Administrator, USNRC, Region I
A. L. Burritt, USNRC Senior Resident Inspector, LGS