APR 2 0 1994

Docket Nos. 50-352
50-353

Mr. D. M. Smith
Senior Vice President -
Nuclear
PECO Energy
Nuclear Group Headquarters
Correspondence Control Desk
P. O. Box 195
Wayne, PA 19087-0195

Dear Mr. Smith:

SUBJECT: DEVIATION FOR CORE THERMAL HYDRAULIC INSTABILITIES

This letter refers to your letter, dated November 1, 1993, regarding your corrective actions for a deviation on core thermal hydraulic instabilities at Limerick Unit Nos. 1 and 2. NRC inspectors reviewed your corrective actions and documented the acceptability of those actions in NRC Inspection Report No. 50-352&-353/93-33. Our review of your corrective actions is closed. Nonetheless, we have noted that we had not established a final NRC position on the deviation, which you had previously contested. This response maintains that the original deviation was valid.

Specifically, on September 18, 1992, NRC Examination Report No. 50-352&-353/92-21, issued a deviation regarding our conclusion that the Limerick Unit Nos. 1 and 2 operating procedures did not meet your previous commitments regarding core thermal hydraulic instabilities. Your October 16, 1992, letter contested the deviation. Subsequently, an October 14, 1993, meeting was held to further discuss the subject, and you provided additional corrective actions that you were taking. As documented in NRC Inspection Report No. 50-352&-353/93-33, issued on February 2, 1994, your corrective actions for the thermal hydraulic issue have satisfied the Region I staff's original concerns, and the issue has been closed. However, as we never established a position in writing in response to your contesting the deviation, we have concluded that such an action is appropriate.

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Accordingly, despite your positions in writing, and in the meeting that contested the deviation issued on September 18, 1992, we have concluded that the deviation remains valid. We regret the delay in establishing this conclusion.

We appreciate your cooperation; we do not expect any response to this letter.

Sincerely,

Original Signed By:
Marvin W. Hodges

Marvin W. Hodges, Director
Division of Reactor Safety

cc:
J. Doering, Chairman, Nuclear Review Board
D. R. Helwig, Vice President - Limerick Generating Station
G. A. Hunger, Jr., Manager - Licensing Section
J. L. Kantner, Regulatory Engineer - Limerick Generating Station
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RI:DRS	RI:DRS	RI:DRS
Hansell	Meyer	Hodges
4/19/94	4/19/94	4/19/94

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DAVID R. HELWIG
VICE PRESIDENT
LIMERICK GENERATING STATION

November 1, 1993

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
Reply to NRC Examination Report
Nos. 50-352/93-18 and 50-353/93-18

NRC Examination Report Nos. 50-352/93-18 and 50-353/93-18 documents the results of the NRC initial operator license examinations administered to certain Philadelphia Electric Company (PECo) employees. The report identified an apparent weakness in the examinees' performance in the identification and proper action related to core thermal hydraulic (T-H) instabilities. The report stated that the weak performance may have been due to weak procedural guidance or poor training and questioned how licensed operators will perform in the plant when faced with normal versus abnormal core power oscillations. The report requested a written reply providing the actions taken or planned in response to the noted weakness by October 2, 1993.

On October 14, 1993, a meeting was conducted between PECo and the NRC to discuss and clarify the concerns identified in the subject NRC Examination Report. As a result of this meeting, PECo committed to providing to the NRC the documentation supporting the procedure changes related to core T-H instabilities. Supporting documentation has been made available to the NRC Senior Resident Inspector for Limerick Generating Station for review. Additionally, PECo committed to providing information on how the commitments contained in PECo's reply to Bulletin 88-07, "Power Oscillations in Boiling Water Reactors (BWRs)," Supplement 1, were evaluated as part of the changes made to the procedures.

This letter provides the requested and committed to information. This response is being submitted by November 1, 1993 as agreed upon during the October 14, 1993 meeting.

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In response to the apparent performance weakness and related core T-H oscillation training and procedural concerns noted in the subject NRC Examination Report several actions were taken between July and September 1993.

To ensure proper current operator response, core oscillations similar to the transients run during the initial operator license exams were run during Licensed Operator Requalification (LOR) training in July 1993. Interviews were then conducted with many of the licensed operators to test their understanding of core T-H oscillations, related symptoms, and applicable procedural guidance for responding to this type of transient.

The operators demonstrated that they would recognize and correctly respond to abnormal core power oscillations. Through performance and discussion they exhibited thorough knowledge of core T-H oscillation transients. However, the interviewed operators placed low emphasis on the frequency of oscillations exhibited during a core T-H instability transient and exhibited an incomplete awareness of strong positive or negative swings of the reactor neutron multiplication period meter.

To determine the cause of the performance weakness observed by the NRC, interviews with the newly licensed operators were conducted. Based on these interviews we have concluded that the weak performance was due primarily to factors related to the examination process and not to procedural guidance or training. However, the newly licensed operators did exhibit the same knowledge weakness as noted above during the LOR training.

To address these knowledge weaknesses, the bases for the Operational Transient Procedures covering core T-H oscillations will be revised to clarify the frequency of the expected power oscillations and the expected response of the period meter. Training on these changes will be provided in LOR training scheduled to start in November 1993.

In response to the concerns expressed at the October 14, 1993 meeting, a review was made of the 1992 revisions to the core T-H oscillation procedures, the technical basis for the revisions, and of how the original commitments made in response to NRC Bulletin 88-07, Supplement 1, were evaluated.

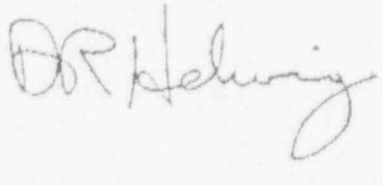
The procedure revisions performed in June 1992, modified the core T-H oscillation detection guidance. These revisions were evaluated under 10CFR50.59 and the commitments made in response to the Bulletin Supplement were included in the evaluation. We had concluded that the core T-H oscillation detection guidance provided in the Boiling Water Owners' Group (BWROG) letter dated March 18, 1992, titled, "Implementation Guidance for Stability

Interim Corrective Actions," was more restrictive than the detection guidance that had previously been committed to in our response to the Bulletin Supplement. This guidance was subsequently cited in NRC Information Notice 92-74, "Power Oscillations at Washington Nuclear Power Unit 2," dated November 10, 1992. The individual that performed the 10CFR50.59 Reviews concluded incorporation of the new guidance maintained or enhanced the level of safety that was established by the original commitment. Since the procedure changes were determined to be within the bounds of the original commitments and did not involve an unreviewed safety question, prior NRC notification of the procedure changes was deemed to be not necessary. However, during the evaluation of the deviation contained in NRC Examination Report 50-352/353/92-21, we discovered that the 10CFR50.59 Reviews for the procedure revisions did not contain sufficient detail. The 10CFR50.59 Reviews were revised in December 1992, to include the details of the evaluation related to the change in core T-H oscillation detection guidance.

Following the meeting conducted on October 14, 1993, the procedures related to core T-H oscillations were again reviewed and we have again concluded that the information in the procedures is still within the bounds of (i.e., more conservative than) the commitments made to the Bulletin Supplement, especially for the detection of regional core T-H oscillations. However, based on a review of similar procedures for other BWR plants, we see some benefit to adding further quantitative criteria for the detection of core T-H instabilities in these procedures. These procedures will be revised to include the quantitative core T-H oscillation detection criteria recommended in the November 1988 BWROG letter entitled, "Interim Recommendation for Stability Actions," which was endorsed by Bulletin 88-07, Supplement 1.

We hope this response provides the information necessary to resolve the NRC's concern in this matter. If you have any questions or require additional information, please contact us.

Very truly yours,



DEN:cah

cc: T. T. Martin, Administrator, Region I, USNRC
N. S. Perry, USNRC Senior Resident Inspector, LGS