January 15, 2003

Mr. William R. Kanda
Vice President - Nuclear, Perry
FirstEnergy Nuclear Operating Company
Perry Nuclear Power Plant
P.O. Box 97, A200
10 Center Road
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT 1 - FEEDWATER ISOLATION VALVE CONDITION REPORT REVIEW (TAC NO. MB1905)

Dear Mr. Kanda:

Your letter of August 30, 2001 (PY-CEI/NRR-2590L), provided the results of your comprehensive investigation into issues raised by Perry Condition Report (CR) 01-0853, "Basis for Current Feedwater Penetration Operability." The CR identified technical deficiencies associated with Perry Amendment No. 105, dated March 26, 1999, where the staff approved changes to the design and licensing basis for the containment isolation valves of the feedwater system. While you concluded that the majority of the identified issues were adequately addressed, you determined that an improved/supplemented method of testing and/or inspection would be required to assure adequate verification of long term operability of the feedwater check valves. In addition, you identified a number of other areas involving long term actions.

The staff has completed its independent review of the CR, Amendment No. 105, and the Immediate Investigation report dated March 15, 2001. Our analysis of the CR concludes that the modifications to the feedwater penetrations improve the previous feedwater penetration design. Less time is necessary to fill the leakage control system before it is required to perform its safety function and the high integrity gate valve has been made more reliable. In addition, the previous check valve leakage criterion, which was difficult to comply with, has been eliminated by the improved design. However, similar to your results, the staff has identified a number of deficiencies and areas requiring resolution.

The enclosure represents a compilation of the identified issues associated with CR 01-0853. For completeness and accuracy of the staff's efforts associated with the approval of Amendment No. 105, we request that you respond to the issues identified in the enclosure.

Sincerely,
/RA by Douglas V. Pickett for/
Stephen P. Sands, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-440

cc w/encl: See next page

Perry Nuclear Power Plant, Unit 1

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10 Center Road
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SUBJECT: PERRY NUCLEAR POWER PLANT, UNIT 1 - FEEDWATER ISOLATION VALVE CONDITION REPORT REVIEW (TAC NO. MB1905)

Dear Mr. Kanda:

Your letter of August 30, 2001 (PY-CEI/NRR-2590L), provided the results of your comprehensive investigation into issues raised by Perry Condition Report (CR) 01-0853, "Basis for Current Feedwater Penetration Operability." The CR identified technical deficiencies associated with Perry Amendment No. 105, dated March 26, 1999, where the staff approved changes to the design and licensing basis for the containment isolation valves of the feedwater system. While you concluded that the majority of the identified issues were adequately addressed, you determined that an improved/supplemented method of testing and/or inspection would be required to assure adequate verification of long term operability of the feedwater check valves. In addition, you identified a number of other areas involving long term actions.

The staff has completed its independent review of the CR, Amendment No. 105, and the Immediate Investigation report dated March 15, 2001. Our analysis of the CR concludes that the modifications to the feedwater penetrations improve the previous feedwater penetration design. Less time is necessary to fill the leakage control system before it is required to perform its safety function and the high integrity gate valve has been made more reliable. In addition, the previous check valve leakage criterion, which was difficult to comply with, has been eliminated by the improved design. However, similar to your results, the staff has identified a number of deficiencies and areas requiring resolution.

The enclosure represents a compilation of the identified issues associated with CR 01-0853. For completeness and accuracy of the staff's efforts associated with the approval of Amendment No. 105, we request that you respond to the issues identified in the enclosure.

Sincerely,
/RA by Douglas V. Pickett for/
Stephen P. Sands, Project Manager, Section 2
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-440
cc w/encl: See next page
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FEEDWATER ISOLATION VALVE CONDITION REPORT REVIEW

FIRSTENERGY NUCLEAR OPERATING COMPANY

PERRY NUCLEAR POWER PLANT, UNIT 1

DOCKET NO. 50-440

As a result of FirstEnergy's comprehensive investigation of Condition Report 01-0853, the licensee's letter dated August 30, 2001 (PY-CEI/NRR-2590L), identified the corrective actions listed below. Please provide your disposition for each item.

ISSUE 2: FEEDWATER CHECK VALVE TESTING CONFORMANCE WITH 10 CFR 50.55A AND THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE

- Under the heading of FACTOR OF 10 ADJUSTMENT FACTOR FOR LEAK TESTS PERFORMED AT PRESSURES BELOW FUNCTION PRESSURE, two Actions:

1. Some form of testing of the parallel (bypass) piping path around the main feedwater pumps needs to be re-instituted; either a "disassemble and inspect" on check valve 1N27-F0515, or some other check to ensure long term leak integrity of the check or the gate valve (1N27-F0200) in the bypass line.

2. Appropriate program changes should be made to ensure that rework is required on the turbine/motor-driven feed pump discharge check valves if the PTI acceptance criteria of "no rotation" is not met. Consideration should be given to specifying performance of the PTI during the plant shutdown process, to permit rework to be performed if needed. Also, explicit sign-off steps should be added into the PTI to provide better documentation that the two turbine-driven pumps do not rotate.

- Under the heading DOCUMENTATION OF METHODOLOGY, one Action:

  The Inservice Testing ASME Section XI Valve Program Basis Document and the Performance Based Leak Testing Program need to be updated by PES to reflect the current methodology. These would be the proper documents to identify the basis for changes related to License Amendment No. 105.

ISSUE 3: LEAKAGE ACCEPTANCE CRITERIA

- Under the heading IMPACT OF TEST PRESSURE AND POSTULATION OF AN ORIFICE, one Action:

  Change the Feedwater check valve test method and acceptance criteria, to ensure the issues identified in Issue 3 (as described in FirstEnergy's letter dated August 30, 2001) do not become concerns in the future.

- Under the heading SENSITIVITY CALCULATION - TWO HOUR DURATION, one Action:

  Although the corrective action for Issue 3 should ensure that the valves will not leak excessively in the future during a Feedwater Line Break, consideration should be given to revising the Motor-Operated Valve (MOV) Program for the Feedwater gate valves. To be consistent with the two hour duration in the Feedwater Line break calculation, consider updating the MOV Program to require that at least a 135 psid (residual heat removal shutdown cooling permissive) closure capability be maintained for these valves in the future.

- Under the heading SENSITIVITY CALCULATION - IODINE SPIKE, one Action:

  Perform design interface review to determine if an iodine spike should be included in the Feedwater line break analysis and update the licensing basis accordingly.

ISSUE 6: CLOSED SYSTEMS OUTSIDE CONTAINMENT AND SECONDARY CONTAINMENT BYPASS LEAKAGE

- Under the heading SECONDARY CONTAINMENT BYPASS LEAKAGE, two Actions:

1. Evaluate and revise, if determined necessary, Updated Safety Analysis Report (USAR) Table 6.2-40, Note 25 and supporting procedures to reflect that only one 1E12-F0053 valve should be included in the 0.6 L_a total, and then only if the Division 1 or 2 grouping has the largest leakage.

2. Revise appropriate USAR leak rate testing Tables, the Plant Data Book Containment Isolation Valve Table, and supporting procedures to reflect the stem/bonnet exams on the 1E12-F0050 and 1E12-F0053 valves.

In addition to the items identified above, the staff's review has identified additional concerns identified below. Please provide your disposition to the following:

1. While the Nuclear Regulatory Commission safety evaluation supporting Amendment No. 105 removed leak testing of the feedwater check valves from Appendix J and placed it in the Perry Inservice Testing Program (ISTP), it was not done correctly. The Perry ISTP references ASME/ANSI OM Part 10. Section 4.2.2.2 of OM Part 10, Containment Isolation Valves, states that containment isolation valves shall be tested in accordance with Appendix J to 10 CFR Part 50. However, as a result of the staff's actions in Amendment No. 105, the requirements of Appendix J are not applicable to the feedwater check valves.

   Section 4.2.2.2 of OM Part 10 further states that containment isolation valves which "also provide a reactor coolant system pressure isolation function" (i.e., pressure isolation valves) shall be tested in accordance with Paragraph 4.2.2.3. Paragraph 4.2.2.3 contains specific requirements for ISTP valve testing such as test frequency, adjustments from the test pressure to the operating pressure, test methods and corrective actions if the tested valve(s) do not meet their acceptance criteria. Since the feedwater check valves are containment isolation valves but not pressure isolation valves, the requirements of Paragraph 4.2.2.3 are also not applicable.

In summary, the staff's safety evaluation supporting Amendment No. 105 inadvertently failed to provide any alternatives to the leak testing requirements of either Appendix J or OM Part 10 for the feedwater check valves. Therefore, please provide your standards for test frequency, adjustments to the test pressure, test methods, and corrective actions for the feedwater check valves. The adjustment from test pressure to system operating pressure described in OM Part 10 Section 4.2.2.3(b)(4) or an equivalent should apply unless otherwise justified.

2. It is not clear that the break exclusion of the reactor water cleanup line was reviewed as part of Amendment No. 105. To qualify as a break exclusion line, the line must satisfy the seven criteria of Standard Review Plan 3.6.2, Branch Technical Position MEB 3-1, B.1.b.1 through 7. Please confirm that these criteria are satisfied.

3. Isolation of the feedwater penetrations is not single-failure proof and relies on the closure of the feedwater gate valves. The design changes to the feedwater gate valves in Amendment No. 105 improves their reliability to close. However, if these valves cannot be closed by remote manual means, procedures should be in place for local closure of these valves. It is recommended that such procedures be available.