Station Support Department

10 CFR 50.55a

PECO NUCLEAR

A UNIT OF PECO ENERGY

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965 Chesterbrook Boulevard
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Docket Nos. 50-277
50-278
License Nos. DPR-44
DPR-56

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

Subject: Peach Bottom Atomic Power Station, Units 2 and 3
Submittal of Revised Relief Request No. GVRR-2, Revision 3 to the Second Ten Year Interval of the Inservice Testing (IST) Program

References:

1. Letter from G. A. Hunger, Jr. (PECO Energy Company) to U. S. Nuclear Regulatory Commission (USNRC), dated February 15, 1995
2. Letter from J. W. Shea (USNRC) to G. A. Hunger, Jr. (PECO Energy Company), dated March 13, 1995
3. Letter from G. A. Hunger, Jr. (PECO Energy Company) to USNRC, dated April 17, 1995
4. Letter from J. F. Stolz (USNRC) to G. A. Hunger, Jr. (PECO Energy Company), dated July 7, 1995
5. Letter from G. A. Hunger, Jr. (PECO Energy Company) to USNRC, dated July 14, 1995
6. Letter from G. A. Hunger, Jr. (PECO Energy Company) to USNRC, dated August 9, 1995
7. Letter from J. F. Stolz (USNRC) to G. A. Hunger, Jr. (PECO Energy Company), dated September 5, 1995
8. Letter from G. A. Hunger, Jr. (PECO Energy Company) to USNRC, dated September 19, 1995
9. Letter from J. F. Stolz (USNRC) to G. A. Hunger, Jr. (PECO Energy Company), dated September 25, 1995

Dear Sir:

Attached for your review and approval is Revision 3 to Relief Request No. GVRR-2 for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 Second Ten Year Interval Inservice Testing Program (IST). This Relief Request was also the subject of the Referenced letters. A discussion of the changes, and the basis for relief, is contained in the attached revised Relief Request. We request that this Revision 3 to GVRR-2 be approved by July 12, 1996.

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Relief Request GVRR-2 has been revised to identify 3 valves (XFC-2(3)-02-11, XFC-2(3)-02-21A and XFC-2(3)-02-021C) that can be tested during system outages rather than refueling outages. These valves were originally identified in the Reference 9 Safety Evaluation as valves tested during refueling outages. However, further review has determined that these valves can be safely tested during system outages. The discussion below provides justification for testing the valves during system outages, at a refueling outage frequency, rather than quarterly testing as required by the Code. Additionally, justification is provided which demonstrates that testing of the valves during a refueling outage, which is permissible in accordance with ASME/ANSI OMa-1988, Part 10, also creates undue hardship without a compensating increase in safety.

As requested in Section 3.3.2 ("Valves Tested During System Outages") and Section 3.3.1 ("Valves Tested During Refueling Outages") of the Reference 9 Safety Evaluation, this revised Relief Request has been updated to separate the Excess Flow Check Valves (EFCVs) into two categories: 1) EFCVs that are tested during the system outages, and 2) EFCVs that are tested during refueling outages. This reformatting is in addition to the changes proposed by PECO Energy.

Testing of XFC-2(3)-02-11 on a quarterly basis, or during refueling outages, results in an unnecessary hardship without a compensating increase in safety. This check valve is located in the reference leg of level transmitter LT-61. This level transmitter's primary function is to provide reactor level indication during shutdown conditions. Testing of XFC-2(3)-02-11 during the hydrostatic test results in operators controlling reactor vessel level through control of reactor pressure without the on-scale level indication provided by LT-61. Additionally, performance of this test during the hydrostatic test requires the backfilling of the sensing line which subjects the operator to unnecessary risk that can be eliminated if the lines are tested during a system outage. During a system outage, backfilling is not necessary because normal steam condensation will refill the sensing line. Since level transmitter LT-61 is the only instrument effected by the testing of XFC-2(3)-02-11, and there are no trip functions associated with LT-61, testing this valve at power will enhance plant safety during the hydrostatic test by providing on-scale level indication throughout the hydrostatic test.

Testing of XFC-2(3)-02-21A and C on a quarterly basis, or during refueling outages, also results in undue hardship without a compensating increase in safety. These check valves are located in lines which connect to calibrated jet pumps 1 and 11. These lines connect flow transmitters FT-2(3)-02-63A and C to the high pressure test taps of calibrated jet pumps 1 and 11. Also connected to calibrated jet pumps 1 and 11 are excess flow check valves XFC-2(3)-02-23 A and C which are tested during system outages and not refueling outages. Testing of XFC-2(3)-02-23A and C during system outages presents the opportunity to also test XFC-2(3)-02-21A and C since these lines are also safely isolated during the system outage. The lines for XFC-2(3)-02-21A and C are used to measure flow through the jet pump and would not provide a safety function during the system outage. Therefore, testing of XFC-2(3)-02-21A and C on a quarterly basis, or during refueling outages, results in undue hardship resulting from lost efficiency which can be obtained through testing the excess flow check valves during the system outage when the system is safely isolated and other system testing (i.e., XFC-2(3)-02-23A and C) is occurring. Additionally, resources are at less of a premium during system outage than during a refueling outage.

If you have any questions, please contact us.

Very truly yours,

G. A. Hunger, Jr.

G. A. Hunger, Jr.
Director - Licensing

Enclosure

cc: T. T. Martin, Administrator, Region I, USNRC
W. L. Schmidt, USNRC Senior Resident Inspector, PBAPS

RELIEF REQUEST NO. GVRR-2, REVISION 3

Valves:

Excess Flow Check Valves (EFCVs) tested during system outages:

Reactor & Recirculation System:

XFC-2(3)-02-007A(B)
XFC-2(3)-02-023A(B,C,D), XFC-2(3)-02-025
XFC-2(3)-02-305A(B)
XFC-2(3)-02-062A(B,C,D)
XFC-2(3)-02-031B(C,D,E,G,H,J,K,M,N,P,R,T,U,V,W)
XFC-2(3)-02-011, XFC-2(3)-02-021A(C)
XFC-2(3)-02-064A(B,C,D)

RWCU System:

XFC-2(3)-12-066A(B), XFC-2(3)-12-80457L(H)

RCIC System: XFC-2(3)-13-055A(B)

Core Spray System: XFC-2(3)-14-031A(B)

HPCI System: XFC-2(3)-23-037A(B)

EFCVs tested during refueling outages:

Reactor & Recirculation System:

XFC-2(3)-02-008A(B)
XFC-2(3)-02-015A(B), XFC-2(3)-02-017A(B)
XFC-2(3)-02-019A(B), XFC-2(3)-02-021B(D)
XFC-2(3)-02-027, XFC-2(3)-02-033, XFC-2(3)-02-037A(B)
XFC-2(3)-02-073A(B,C,D,E,F,G,H)

Category:

A, C

Testing Requirement(s):

Exercise quarterly

Basis for Relief:

Excess flow check valves (EFCVs) are installed on instrument lines penetrating containment to minimize leakage in the event of an instrument line failure outside the containment in accordance with Regulatory Guide 1.11. The EFCV is a spring loaded ball check valve. Since the system is normally in a static condition, the valve ball is held open by the spring. Any sudden increase in flow through the valve (i.e. line break) will result in a differential pressure across the valve which will overcome the spring and close the valve. Functional testing of valve closure is accomplished by venting the instrument side of the valve while the process side is under pressure and verifying the absence of leakage through the vent.

The testing described above would require the removal of the associated instrument or instruments from service on a quarterly basis. Removal of any of these instruments from service outside of a scheduled refueling outage or a controlled system outage may cause a spurious signal which could result in a plant trip, an inadvertent initiation of a safety system, loss of decay heat removal and/or the defeating of safety interlocks.

Testing of some EFCVs can be performed during a scheduled system outage when appropriate plant administrative procedures and controls are utilized to ensure plant safety. System outages are performed in order to enhance system performance and maximize system availability. They are scheduled on a less than quarterly frequency (typically once an operating cycle). Taking system outages quarterly solely for the purpose of EFCV testing would result in reduced system availability and increased risk to the plant. NUREG-1482, Section 3.1.2 recommends minimizing equipment out of service time. The additional assurance of operational readiness afforded through surveillance testing must outweigh the impact on plant safety incurred when removing equipment from service.

In Section 4.1.4 of NUREG-1482, the USNRC approves the deferral of backflow testing of check valves to refueling outages when the testing requires the installation of test equipment. The intent of this request is the same in that EFCV testing requires a plant evolution which should be avoided unless appropriate plant administrative controls are in place.

As discussed in NUREG-1482, the staff recommends that the basis for relief address whether: (1) the proposed alternative gives an acceptable level of quality and safety, (2) compliance would result in a hardship without a compensating increase in the level of safety, or (3) complying with Code requirements is impractical. Two of these criteria, and the basis for meeting the criteria are provided below:

<u>The proposed alternative gives an acceptable level of quality and safety</u>.

A review of NPRDS industry failure data for the Dragon excess flow check valves, which is the manufacturer of the valves used at PBAPS, reveals only 7 failures. The 7 failures break down as follows; 2 were a result of an IST surveillance which failed to meet the acceptance criteria for leakage, 1 was an indication (limit switch) problem, and 4 were leakage caused by a bad gasket. Both IST failures occurred at Peach Bottom. A thorough review of Peach Bottom excess flow check valve test history has shown that the 2 NPRDS failures above are the only 2 out of 956 valve tests since 1980. One of the failures, 1.1 gpm measured leakage, was due to dirt on the seating surface of the valve; the other, 4.0 gpm measured leakage, was due to a defective seating surface in the manual bypass portion of the EFCV. These are 2 independent failures which have not been repeated. Only 2 failures out of 956 valve tests indicates that the valves are highly reliable. Further, this review of surveillance test history shows evidence of no time

based failure mechanisms or chronic failures associated with the excess flow check valves. Although the testing of the EFCVs was performed on the previous refueling cycle frequency (approximately 18 months), testing of the EFCVs has been performed since 1993 on a 24 month refueling outage frequency. Therefore, performing the testing of the EFCVs on a 24 month frequency is appropriate.

Compliance would result in a hardship without a compensating increase in safety.

Personnel safety would decrease if EFCV testing would be performed on a quarterly basis during plant operation without an appropriate system outage. During power operation, the process side of the EFCVs is normally high pressure (>500 psig) and/or high temperature (>200°F) and highly contaminated reactor coolant. Testing EFCVs during system outage windows with the appropriate administrative procedures and controls applied will ensure personnel safety. Additionally, testing at a frequency greater than once per operating cycle would also result in increased radiation dosage and reduced system availability without any compensating increase in safety.

Improvements in work planning and scheduling have resulted in a significant reduction in outage duration at Peach Bottom. As a result of these improvements, EFCV testing has become an outage critical path activity. Due to the large number of EFCVs and the plant conditions required to perform the testing (reactor pressure > 500 psig), testing all the valves during refueling results in an outage duration increase of approximately 2 days. Based on current replacement power costs, this equates to an expenditure of $900,000 per year for the life of the plant. In order to reduce this level of burden, extensive programmatic and procedural controls are used during system outages to ensure that the impact on plant safety is understood prior to removing equipment from service. This process is consistent with industry practice and USNRC guidance, and has been recognized as an effective method of controlling the impact of plant activities on safety. During a refueling outage, the constraints on resources are at a premium, and the elimination of work which can be safely performed independent of these constraints is both practical and prudent.

In summary, considering the extremely low failure rate, personnel and plant safety concerns, and the high monetary cost of testing during refueling outages, EFCV testing at a frequency greater than once per operating cycle and exclusively during refueling outages is impracticable and results in a hardship without a compensating increase in the level of safety.

Alternate Testing:

Functional testing will be performed once per operating cycle during a refueling outage or system outages when appropriate plant administrative controls are in place.