10 CFR 50.55a

PECO NUCLEAR
A Unit of PECO Energy

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January 29, 1999

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
Response to Safety Evaluation Report Concerning the
Third Ten Year Interval Inservice Testing Program

References:
1) Letter from T. N. Mitchell (PECO Energy Company (PECO Energy)) to U. S. Nuclear Regulatory Commission (USNRC), dated May 8, 1997

2) Letter from G. D. Edwards (PECO Energy) to USNRC, dated February 13, 1998

3) Letter from R. A. Capra (USNRC) to G. D. Edwards (PECO Energy), dated May 11, 1998

Dear Sir/Madam:

In the Reference 1 and 2 letters, PECO Energy Company (PECO Energy) provided for your review and approval the relief requests and an alternative plan associated with the third ten year interval Inservice Testing (IST) Program for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. In the Reference 3 letter, the U. S. Nuclear Regulatory Commission (USNRC) authorized the use of the ASME Operations and Maintenance (OM) Code - 1990 in lieu of the 1989 Edition of the ASME Section XI, Subsections IWP and IWV. Additionally, as discussed in Sections 2.5 and 3.0 of the Safety Evaluation, the USNRC granted the use of relief requests provided the action items identified in Appendices A and B of the Technical Evaluation Report (TER), and Section 2.5 of the Safety Evaluation are addressed within one year of the date of the Safety Evaluation (May 11, 1999) or by the end of the next refueling outage, whichever is later, unless another period is specified.

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Accordingly, attached is our response which addresses Section 2.5 of the Reference 3 Safety Evaluation, and the action items contained in Appendices A and B of the

TER. Also provided are clarifications and corrections identified during the review of the Safety Evaluation. PECO Energy is proceeding to implement the PBAPS Units 2 and 3 IST Program consistent with the authorization provided in Reference 3, with the clarifications and corrections described in this letter.

If you have any questions, please contact us.

Very truly yours,

Garrett D. Edwards
Director - Licensing

Attachment

cc: H. J. Miller, Administrator, Region I, USNRC
A. C. McMurtray, USNRC Senior Resident Inspector, PBAPS

PECO Energy Company Response to the U. S. Nuclear Regulatory Commission Safety Evaluation Report Concerning the Third Ten Year Interval Inservice Testing (IST) Program Peach Bottom Atomic Power Station, Units 2 and 3

Section I below addresses clarifications and corrections identified by PECO Energy Company in review of the cover letter, Safety Evaluation Report (SER), and Technical Evaluation Report (TER) included in your letter dated May 11, 1998 (R. A. Capra, U. S. Nuclear Regulatory Commission (USNRC) to G. D. Edwards PECO Energy Company (PECO Energy)) . Section II provides the requested responses to issues identified in SER, paragraph 2.5. Section III provides responses to TER Appendix A, program anomalies. Section IV addresses the issues identified in TER Appendix B. The item numbers in Section II, III, and IV correspond to SER paragraph 2.5, TER App. A, and TER App. B item numbers, respectively.

Section I - PECO Identified Clarifications and Corrections

1. Cover letter page 1/ SER page 1/ TER page 1: The stated interval dates for the IST program are incorrect. In the Reference 1 letter, 1997 PECO Energy extended the 2nd 10 year interval for both PBAPS, Units 2 and 3 to August 14, 1998, and identified the 3rd 10 year interval dates as August 15, 1998 to August 14, 2008.

2. SER page 3, 1st paragraph: The last sentence of this paragraph states "Program changes that add or delete components from the IST Program should be periodically provided to the NRC." PECO Energy is not aware of any Code or regulatory requirement to do so. Use of the word "should" in the above sentence may be implying this fact; however, this issue has been identified to ensure PECO clearly understands and complies with all IST Program requirements during the 3rd 10 year interval.

3. SER page 6, paragraph 2.1.1.3: The first paragraph of 2.1.1.3 refers to SE section 3.3.1. There is no section 3.3.1. It appears the reference should be to section 2.1.1.1.

4. SER page 7, paragraph 2.1.1.4: In this paragraph, reference is made to "Section 2.1.2." This should state "Section 2.1.1."

5. TER page 1, 1st paragraph: This paragraph of the TER introduction identifies Philadelphia Electric Company as the licensee. As stated in the PBAPS, Units 2 and 3 license, PECO Energy Company is the appropriate licensee name.

6. TER page 1, paragraph 4: The first bullet in the list of documents utilized during review of the PBAPS IST Program is Standard Review Plan, Section 3.9.6. PBAPS, Units 2 and 3 are not committed to the SRP.

7. SER Table 1: Table 1 provides a summary of relief requests submitted. Relief Request GVRR-7 is not included in the table. However, the relief is discussed in the SER paragraphs 2.1 and 2.1.2.

Section II - Responses to SER, Paragraph 2.5 Action Items

Action Item 1, Relief Request GVRR-7:
In Relief Request GVRR-7, the licensee should commit to declaring all four valves in the system inoperable in the event of a failure of the system to perform its function and apply corrective actions, as necessary, prior to returning the valves to service (See Section, 2.1.2 of this SE)."

PECO Response:
In accordance with existing PBAPS, Units 2 and 3 procedures, test failures are evaluated to determine the operability of the affected equipment and the required corrective action. If a test does not provide the data required to determine which valves in a series parallel arrangement have failed to operate as required, the operability of all the valves in question would be evaluated accordingly. Additionally, the associated implementing procedures and Relief Request GVRR-7 (Attachment Page 1) have been annotated to include a note reminding personnel to evaluate the operability of all four vacuum relief valves in the event of a test failure.

Action Item 2, Relief Request GVRR-7:
"The licensee should evaluate the check valve "open" acceptance criterion for the valves in Relief Request GVRR-7 because the current acceptance criterion does not appear to be definitive and sufficiently quantifiable (See Section 2.1.2 of this SE)."

PECO Response:
The intent of GVRR-7 is to obtain relief to allow closed and open testing of the RCIC and HPCI vacuum relief valves using the test methods described. It is acknowledged that the open test methodology does not test each valve individually, nor does the closed test methodology. It is not possible to test the valves individually in either direction as discussed in the relief. Since the open safety function of the valves is to ensure the turbine exhaust lines are drained after the system has been in service, the proposed testing is appropriate. Because of the discrepancy between the SER discussion which states that the open test methodology "…verifies the turbine exhaust lines are not drained…" and GVRR-7, which states in part, under Alternate Testing, "..verifying the turbine exhaust lines are drained", the intent of this SER comment is unclear with respect to this issue.

This request for relief, formerly GVRR-7, was approved by the USNRC (Reference 2) for the PBAPS Second 10 Year Interval IST Program. In that TER, paragraph 3.7.1.4, it was

stated in summary that "Based on the impracticality of individually verifying operational readiness of these vacuum breaker check valves, the burden on the licensee if these Code requirements were imposed, and considering that testing these valves as a unit should provide reasonable assurance of the units ability to perform its safety function to permit forward flow and block reverse flow, relief may be granted from the requirements of Section XI provided that the licensee verifies valve reverse flow closure during quarterly pump testing. Also, if either the forward or reverse flow closure capability of this group becomes questionable, all the valves in the group must be declared inoperable and be repaired, replaced, or individually verified operable."

In summary, PECO requests approval of the open and closed test methodology as described in GVRR-7. GVRR-7 has been revised for clarification to ensure the testing performed is adequately described and the intent of the relief is clear.

Action Item 3, Relief Request 10-VRR-1:
"The licensee should review the scope requirements of the valves referenced in Relief Request 10-VRR-1 and the NRC guidance in NUREG-1482 to ensure that only one valve is required to fulfill the closure safety function and make any changes to their IST program as necessary (See Section 2.1.3 of this SE)."

PECO Response:
PECO Energy considers both of the series check valves, CHK-2(3)-10-183A,B and CHK-2(3)-10-184A,B to be safety-related. While it is true that only one of the two valves would be required to close to perform their safety-related function, the noted deletion of the sentence "Although, only one valve is required by design to provide isolation capability, testing these valves as a pair is preferable to valve disassembly and inspection" was made to clarify our position that both valves are safety-related. PECO Energy considers leak testing the check valves as described preferable to disassembly and inspection (in accordance with GL 89-04 Position 2) for verifying the ability of the valves to function as required. Since system design does not provide a mechanism for individual valve leak testing, relief has been requested to leak test the series check valves as a pair. As stated in the relief request, both valves will be considered inoperable should a test failure occur.

Action Item 4, Technical Position TP-1:
"The licensee should evaluate the applicability of components referenced in TP-1 to the IST program and make any changes as necessary (See Section 2.3 of this SE)."

PECO Response:
See Section III, Items 2 and 11 below.

Section III - Responses to TER Appendix A Program Anomalies

Action Item 1, Relief Request GPRR-1:
"The licensee submitted GPRR-1 (see section 3.1.1.1 of this report) for the listed diesel fuel oil transfer, emergency service water booster, and the emergency cooling water pumps. The licensee proposes to use ultrasonic instruments with an accuracy of plus or minus 5 % of reading in lieu of the code accuracy requirements. Use of these instruments should provide sufficiently accurate and repeatable data to utilize in monitoring pump degradation. The burden on the licensee would not be justified by the limited information that would be provided concerning pump mechanical condition if the Code requirements were imposed. However, the licensee has not provided information on the pumps, pump test circuits, test flow rates, or the test instrument installation process to allow a thorough evaluation of the request. Interim relief should be granted from the Code instrumentation accuracy requirements for a period of one year or until the next refueling outage, whichever is longer."

PECO Response:
The following additional information concerning the subject pumps is provided to facilitate the thorough evaluation of Relief Request GPRR-1:

The diesel fuel oil transfer pumps perform the safety-related function of transferring diesel fuel from the main storage tank to its respective day tank. This function ensures a continuous fuel supply for long term operation of the engine during accident conditions. These centrifugal pumps must be capable of automatically starting when day tank level decreases to the low level set point, as indicated by the day tank level switches, and will remain on until the day tank inventory has increased to the high level setpoint. The transfer pumps must be capable of transferring fuel oil from the storage tank to the day tank at a rate greater than the maximum fuel consumption of the engine. The fuel oil transfer pump is powered by the Class 1E ac power system from the same electrical division as the diesel generator it supplies.

By design, the transfer pumps are required to provide only 3.2 gpm to support continuous emergency diesel generator operation in the event of a loss of offsite power. These pumps have a reference flowrate and differential pressure of approximately 45 gpm at 22.00 psid (slight variation between the 4 pumps). The pump reference differential pressure of 22.00 psid results in a very tight acceptance criteria range of approximately 4.4 psid. As a result, any significant change in pump performance, or incorrect installation/use of the ultrasonic testing flowmeter would result in a test failure. Review of the test history shows the pump hydraulic parameters to be very repeatable. Procedures used for testing these pumps contain instructions for personnel concerning the location for ultrasonic flow transducer installation.

The Emergency Cooling Water (ECW) pump provides a reliable backup source of cooling water in the event both Emergency Service Water (ESW) pumps fail to achieve

adequate discharge pressure. The pump receives its suction from the emergency cooling tower and utilizes the ESW system piping to supply cooling water for heat removal from essential plant components. As with the ESW pumps, the ECW pump has a design discharge capacity of 8000 gpm. In order to backup an ESW pump, the ECW pump would need to supply a minimum flow rate of 3145 gpm to those components dependent upon cooling water to accomplish their post accident heat removal design safety function. This flow rate is based on the worst case accident scenario for each heat exchanger and is representative of 100% flow to the Unit 2 and 3 ECCS unit coolers and the diesel generator coolers. 3145 GPM is sufficient to mitigate the consequences of a design basis accident with one unit while bringing the other unit to a safe shutdown condition. The ECW Pump is also capable of supporting safe shutdown of Units 2 and 3 in the case of a loss of the Conowingo Pond, as described in more detail below. The ECW pump starts automatically upon a diesel start and subsequently trips if the ESW pump is above the low pressure setpoint. The ECW pump will also start automatically if ESW system pressure falls below the acceptable pressure setpoint with the presence of certain diesel generator relay initiation signals. The ECW pump receives its power from an emergency switch gear bus on a loss of off-site power.

The ESW booster pumps are 100% capacity pumps required to operate in support of the ESW and ECW systems when aligned to the emergency heat sink (EHS). These pumps are only required during a postulated special event, known as "Loss of the Conowingo Pond", where the plant would be isolated from the normal cooling water supply (the Conowingo Pond), and placed into a closed loop cooling mode. When aligned to the emergency heat sink, cooling water returning to the emergency cooling towers requires a boost in pressure to ensure proper flow in the closed loop, thereby ensuring adequate cooling water to support safe shutdown of Units 2 and 3 . If in "AUTO," the ESW booster pump "A" will automatically start when the pond isolation valve, MO-0-33-0498, travels to the closed position with the adjacent "B" pump starting after a time delay if pump "A" has not developed adequate discharge pressure. The pumps have a design discharge capacity of 8000 gpm. The ESW booster pumps receive its power from a emergency switch gear bus on a loss of off-site power.

In response to the USNRC SER for the PBAPS second 10 year interval IST Program (Refs. 2 and 3), PECO committed to perform a modification to support testing of the EHS pumps in accordance with Code requirements. Modification 5110 was completed in early 1991. This modification installed a high-grade stainless steel spool piece between MO-0-48-501C and emergency cooling tower cell 0CK32 to facilitate testing of the pumps. A mechanically secured track is permanently mounted to the spool piece to provide for transducer installation when testing is performed. The stainless steel spool piece provides a well defined pipe wall thickness and smooth flow paths and velocity profiles. These factors provide for consistent measurement of system flowrates as is evident from review of historical test data. The ECW and ESW Booster pumps are tested together (i.e., the closed loop emergency heat sink configuration is established with MO-0498 closed, the ECW pump running, and each ESW Booster pump placed in service separately) during yearly surveillance testing of the emergency heat sink as described in TP-1.

In conjunction with completion of Modification 5110, Relief Request GPRR-3 was submitted to and approved by the USNRC to allow the use of an ultrasonic flowmeter with a 5% accuracy in lieu of the Code allowed 2% instrument accuracy. The basis for relief of GPRR-1 is identical to the previously approved second 10 year interval relief request GPRR-3. Based on the information provided above, PECO requests approval of this relief for the remainder of the 3rd 10 year interval program.

Action Item 2, Technical Position TP-1:
"TP-1 (see section 3.2.1.1 of this report) requests relief from the pump test frequency requirements specified for the ESW Booster Pumps and proposes to test them once each year when the river temperature is less than or equal to 53 °F. Relief should be granted from the Code requirements as requested. However, TP-1 bases its justification on guidance in NUREG- 1482, Section 3.1.1, which does not address pump testing or authorize or address the once a year test frequency. Further, TPs should not be used to obtain relief from the Code testing method or frequency requirements. TP-1 should be modified in the licensee's IST program to reflect the relief request evaluation."

PECO Response:
PECO Energy considers the quality classification of the EHS components contained in Technical Position TP-1 to be "Augmented" (i.e., non-safety related components for which PECO Energy has made a regulatory of design bases commitment, or has implemented specific controls to ensure plant reliability). As discussed in TP-1, these components do not support mitigation of any design basis transient or accident. Therefore, they are not in the scope of the PBAPS IST Program as defined by the requirements of the ASME Code and 10CFR50.55a. The design basis of the ESW system is discussed in detail in the USNRC safety evaluations transmitted by the Reference 5 and 6 letters.

Therefore, TP-1 will not be modified to reflect the relief request evaluation as suggested in the TER section above. However, TP-1 has been revised to delete reference to NUREG 1482, Section 3.1.1 (see Attachment Page 2). PECO Energy will continue to test the EHS components as described in TP-1 and evaluated as acceptable per the TER.

Action Item 3, Relief Request GVRR-1:
"The licensee submitted GVRR-1 (see section 4.1.4.1 of this report) for deferring the exercising frequency of certain Category B active manual isolation valves without remote position indication. The licensee proposes to exercise these valves once every five years, which may not be justified by valve type, installation, and history. The licensee made general statements about historical data, however, did not provide specific information, such as a listing of the affected valves, the systems in which they are located, whether they have remote position indication or not, accessibility of the valves, high radiation or other personnel hazards near the valves, valve failure history and the failure rate for similar valves at other facilities. As stated in the request, manual valves are of a simple design. Testing these valves is also generally simple. The licensee has adequately

demonstrated the impracticality of exercising these valves quarterly and during cold shutdowns.

GVRR-1 is acceptable as a refueling outage justification, however relief to test at the extended frequency should not be granted as requested. Until additional information is provided and longer test intervals are justified and approved, these valves should be exercised once each refueling outage as permitted by the Code."

PECO Response:
Relief Request GVRR-1 has been withdrawn.

Action Item 4, Relief Request GVRR-4:
"GVRR-4 (see section 4.1.2.1 of this report) requests relief from the test frequency requirements for certain Category A/C containment isolation check valves and proposes to verify the closure capability of these valves during leak rate testing as part of their primary containment leak rate testing program. The tests frequency would be determined according to 10 CFR 50, Appendix J, Option B -Performance Based Requirements. The ASME Code Committee recognizes the benefits of performance-based testing of check valves. A recent change included in the 1996 Addenda to the ASME OM Code-1995 incorporates Appendix II, Check Valve Condition Monitoring Program, which allows changes to the test program based on component performance. The current rulemaking for 10 CFR 50 will include the 1996 Addenda to the OM Code and govern its use. However, the ASME Code Committee has not approved the use of Option B of Appendix J as an alternative to quarterly exercising of check valves. The licensee has not demonstrated that it is impractical to use a Code allowed method such as pressurization testing to verify that these valves close during each refueling outage. The licensee has not shown that the Code frequency requirements create an unusual or undue hardship. Therefore, relief should not be granted as requested. The licensee should verify the closure capability of these valves according to the OM Code test frequency requirements at least each refueling outage."

PECO Response:

Relief Request GVRR-4 has been withdrawn and two new relief requests submitted. 13C-VRR-1 (Attachment Pages 3-5) has been submitted requesting reverse exercise testing of CHK-2(3)-13C-50 at the frequency specified by 10CFR50 Appendix J, Option B. Likewise, 23C-VRR-1 (Attachment Pages 6-8) has been submitted requesting the Option B frequency for reverse exercise testing of CHK-2(3)-23C-65. These RCIC and HPCI turbine exhaust line check valves were included in withdrawn relief request GVRR-4. In both new relief requests, specific and detailed information has been included which clarifies why PECO believes that the proposed testing frequency is appropriate. Testing of the other 16 valves formerly contained in GVRR-4 will be performed in accordance with the frequency requirements of ISTC 4.2.1.

Action Item 5, Relief Request GVRR-5:
"GVRR-5 (see section 4.1.5.1 of this report) requests relief from the remote position indication verification requirements for administratively controlled Category B passive manual isolation valves and proposes not to perform remote position indication verification for these valves. The fact that a valve is passive and administratively controlled in its safety position during all plant operating conditions when the associated system is required to be operable, does not ensure that the remote position indication of that valve will never be observed and believed to accurately reflect the valve's position. The licensee has not shown that the Code requirements create an unusual or undue hardship or burden. Since, the position indication may at some time be used to determine valve position, never verifying its accuracy may result in it providing an erroneous indication. Relief should not be granted as requested from the valve position indication verification requirements of the Code."

PECO Response:

GVRR-5 has been withdrawn.

Action Item 6, Relief Request GVRR-6:
"GVRR-6 (see section 4.1.6.1 of this report) requests relief from the valve stroke timing requirements for all Category A and B rapid-acting valves in the IST program and proposed to apply a maximum stroke time of 5 seconds or for valves that stroke in 5 seconds or close to 5 seconds ±50% of the reference stroke time to these valves. Much of the recent thinking on the topic of rapid-acting valves has been that improved timing techniques may allow better analysis and trending of stroke times. The proposal to adopt a 5 second acceptance criteria has not been shown to be justified for the specific valves covered by this proposal and no unique burden is indicated. Relief should not be granted or the alternative authorized as requested."

PECO Response:

Relief Request GVRR-6 has been withdrawn.

Action Item 7, Relief Request 33-VRR-1:
"33-VRR-1 (see section 4.4.1.1 of this report) requests relief from the exercising frequency requirements for the motor-operated emergency service water (ESW) isolation return valve to normal heat sink, MO-0-33-0498, and proposes to full stroke exercise and stroke time it annually when river temperature is less than or equal to 53 °F. The NUREG section referenced in the licensee's relief request basis does not authorize testing at alternate frequencies other than cold shutdowns or refueling outages. Relief should be granted from the Code exercising frequency requirements as requested. However, since this request bases its justification on being in compliance with NUREG-1482, Section 3.1.1, which does not authorize or address the once a year test frequency, this relief request should be modified to correct this discrepancy (see also anomaly 2)."

PECO Response:
Relief Request 33-VRR-1 (Attachment Page 9) has been revised to delete the reference to NUREG-1482.

Action Item 8, Relief Request 33-VRR-2:
"33-VRR-2 (see section 4.4.1.2 of this report) requests relief from the stroke timing acceptance requirements for ESW cooling water flow isolation to the diesel generator air cooler jacket water cooler and lube oil cooler valves and proposes not to compare measured stroke times to the initial reference values but to use only the limiting values of stroke time. The licensee regularly adjusts the stroke length of these, which changes the valve stroke times and can result in failure to meet the acceptance criteria and result in unneeded corrective actions. Immediate compliance with the Code acceptance criteria requirements for these valves is impractical since it may result in unneeded maintenance or repair. Additionally, the constant attention given these valves should allow detection of degradation during the interim period. Therefore, interim relief should be granted in accordance with 10 CFR 50.55a(f)(6)(i) for a period of one year or until the next refueling outage, whichever is longer. At the end of that period, the licensee should test these valves in accordance with the Code requirements or justify an alternate method."

PECO Response:
Attached for your review is 33-VRR-2, Rev. 1 (Attachment Pages 10-11). This request for relief has been revised to provide additional details which support the adequacy of the testing performed to ensure the operational readiness of the ESW cooling water isolation valves.

Action Item 9, Refueling Outage Justification 01-ROJ-1:
The licensee submitted refueling outage justification 01-ROJ-1 for the main steam Category B/C ADS valves. The proposed test frequency is appropriate, however, the stroke time method deviates from the Code requirements. Therefore, the test method portion of this ROJ should be submitted as a relief request. The guidance of NUREG-1482, Section 4.3.4, provides a vehicle for approval of this request.

PECO Response:

In the reference 4 letter, Relief Request 01A-VRR-1 was approved by the USNRC. 01A-VRR-1 provides relief from the stroke time testing requirement of ISTC 4.2 for the ADS valves. Therefore, 01-ROJ-1 has been deleted from the PBAPS IST Program and the issue described above is moot.

Action Item 10, Technical Positions TP-1 and TP-3:
"Technical Positions TP-1 and TP-3 state that "The deferral of testing this pump/valve is acceptable per the discussion in NUREG- 1482, Section 3.1.1. Section 3.1.1 of NUREG-1482 approves deferring valve and pump testing to once each cold shutdown or once each refueling outage for certain situations where quarterly testing is impractical or poses an undue hardship. However, it does not address the yearly testing interval proposed by the

licensee. The yearly interval may be found to be acceptable, however, the justification should be corrected and augmented to support this interval, even for extended periods when the river temperature is below 53 °F."

PECO Response:
Reference to NUREG 1482 Section 3.1.1 was included in TP-1 and TP-3 to provide supporting information concerning similar situations in which the USNRC staff has determined that longer test frequencies are appropriate. Nevertheless, Technical Positions TP-1 and TP-3 have been revised to delete the reference to NUREG-1482, Section 3.1.1.

Action Item 11, Technical Positions TP-1:
"In addition to the components evaluated in Sections 3.2.1 and 4.4.2.1 of this report, TP-1 also includes the Emergency Cooling Water (ECW) Pump, 00P186, ECW pump discharge check valve, CHK-0-48-506, and ECW pump discharge isolation valve, MO-0-48-0841. These components appear to be augmented components as stated by the licensee in TP- 1, therefore, it is appropriate to use TP-1 to document an extended test frequency for these components.

TP-1 also includes motor operated valve MO-0-48-0841. The reasons given for extending the test intervals for the other augmented components in the TP (preceding) do not appear to apply to this valve. This is a motor operated valve, it does not appear that ESW flow to the emergency cooling tower is necessary to exercise it. Exercising this valve does not appear to rely on the position of valve MO-0-33-0498. The reviewers could not determine the basis for deferring valve testing until once annually. However, since this appears to be an augmented component, no changes to the test program are required. The licensee may provide additional information regarding this valve in future updates to the IST program."

PECO Response:

MO-0-48-0841 is included in PECOs GL 89-10 and GL 96-05 Programs. PECO Energy believes that motor operated valve (MOV) stroke time testing quarterly as required by the ASME OM Code provides little marginal utility in terms of increased safety beyond that provided by the MOV programs themselves. Because it is required to be opened to support yearly testing of the Emergency Cooling Water Pump 00P186, stroke time testing of MO-0-48-0841 is performed at the same frequency.

Section IV, Responses to TER, Appendix B Program Issues

Issues 1, 2, 3, 5, 6, 7, 8, and 9 consist of errata identified during review of the test tables and other program documents, excluding relief requests. These issues have been addressed and/or corrected.

Issue 4 deals with scoping of certain RHR system relief valves. PECO Energy has reviewed the functions of the relief valves provided in the table on the bottom of TER page B-3 and the Code requirements for IST program scoping and determined that RV-40 and RV-72A(B,C,D) are not in the scope of the PBAPS IST Program. RV-35A(B) were incorrectly identified in the submitted test tables as not in the program scope. They are included in the third 10 year interval program scope and will continue to be tested in accordance with Code requirements.

References

1) Letter from G. A. Hunger Jr., PECO Energy, to USNRC, dated October 21, 1997, "Peach Bottom Atomic Power Station Units 2 and 3 Inservice Testing (IST) Program Dates."

2) Letter from Walter R. Butler, USNRC, to G. J. Beck, Philadelphia Electric Company, dated January 17, 1991, "Inservice Testing Program For Pumps and Valves, Peach Bottom Atomic Power Station, Units 2 and 3."

3) Letter from G. J. Beck, Philadelphia Electric Company, to USNRC, dated October 8, 1991, "Peach Bottom Atomic Power Station, Units 2 and 3, Inservice Testing Program."

4) Letter from R. A. Capra, USNRC, to G. D. Edwards, PECO Energy Company, dated October 1, 1998, transmitting the USNRC safety evaluation approving Relief Request 01A-VRR-1.

5) Letter from S.A. Varga, USNRC, to D.M. Smith, Philadelphia Electric Company, dated December 23, 1991, "Emergency Service Water System Capability, Peach Bottom Atomic Power Station, Units 2 and 3 (TAC Nos. M81370 and M81371)

6) Letter from J.F. Stolz, USNRC, to G.A. Hunger, PECO Energy Company, dated June 26, 1996, "Relief Request 33-VRR-1, Revision 0, Peach Bottom Atomic Power Station, Units 2 and 3, (TAC Nos. M95227 and M95228)

GENERIC VALVE RELIEF REQUEST - GVRR-7 , Rev. 1

Valve(s):	VRV-2-13C-139A,B,C,D VRV-2-23C-140A,B,C,D VRV-3-13C-139A,B,C,D VRV-3-23C-140A,B,C,D
Category:	C
Test Requirements:	Exercise in the forward and reverse directions nominally every 3 months as required by ISTC 4.5
Basis for Relief:	These check valves, which function as vacuum relief valves, perform a safety function in the open direction to prevent siphoning of suppression pool water into the turbine exhaust line due to steam condensing when the High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems are shutdown. These valves also perform a safety function in the closed direction to prevent back flow of HPCI and RCIC turbine exhaust steam through the vacuum breaker lines. The valves are installed in series-parallel and were not provided with air operators, test connections, or position indication to facilitate testing (exercising). The piping configurations in the HPCI and RCIC systems do not allow for individual testing of these valves in either the forward or reverse direction. While this valve arrangement does not allow for individual valve testing, no single valve failure can prevent flow in the forward direction or allow flow in the reverse direction. System modifications would be required to permit individual valve testing. Since testing as a unit verifies the ability of the valves to perform their safety function, and performing modifications would be costly, compliance with the requirements of ISTC 4.5 would result in a hardship without a compensating increase in the level of quality and safety.
Alternate Testing:	The above valves will be tested quarterly in the forward and reverse directions as a unit. Forward exercise testing will be performed by verifying the turbine exhaust lines are drained. Valve closure will be verified by monitoring the HPCI and RCIC turbine exhaust vent high temperature alarms located upstream of the valve assemblies. High temperature alarms will indicate steam leakage past the valves. In the event of a test failure, the operability of all four valves will be evaluated. **CM-1**

TECHNICAL POSITION - TP-1, Rev. 1

System:	Emergency Cooling Water	
Component(s):	Emergency Service Water Booster Pumps	0AP163 0BP163
	Emergency Cooling Water Pump	00P186
	ESW Booster Pump Disch. Checks	CHK-0-48-504A CHK-0-48-504A
	ECW Pump Disch. Check	CHK-0-48-506
	ECW Pump Disch. Iso Valve	MO-0-48-0841

Function:

The ESW booster pumps are required to operate in support of the ESW and ECW systems when aligned to the emergency heat sink. The ECW pump provides a reliable backup source of cooling water in the event both ESW pumps fail to achieve adequate discharge pressure.

Testing Requirement(s):

An inservice test shall be run on each pump, nominally every 3 months as required by ISTB 5.1.

Valves shall be exercised nominally every 3 months as required by ISTC 4.2.1 and 4.5.

Position Justification:

Pump testing under design conditions requires closing motor operated valve MO-33-0498 which functions as the ESW return to Conowingo Pond isolation valve. Closing this valve during power operation, with a subsequent failure to reopen, would render the ESW system inoperable. Testing shall be deferred to at least once each year when river temperature is less than or equal to 53° F. At this temperature, adequate heat removal is provided to the safety related equipment dependent upon ESW without reliance on the support of the ESW booster pumps when ESW is aligned to the emergency heat sink.

The above pumps are included in the IST Program as Augmented components. As such, they do not perform a design basis safety related function. They are required to operate when aligned to the emergency heat sink during a "Loss of Conowingo Pond" special event. The emergency heat sink has insufficient capacity to support continued operation for 30 days without makeup during post-accident conditions. In addition, neither the emergency heat sink nor any of its associated components are credited in any design basis accident. Also, providing a reliable backup source of cooling water in the event both ESW pumps fail to achieve adequate discharge pressure would require failure of both ESW pumps, each of which have 100% capacity to supply the heat load demands during post-accident conditions.

Alternate Testing:

Pumps and associated valves shall be tested at least once annually when the river temperature is less than or equal to 53° F.

VALVE RELIEF REQUEST - 13C-VRR-1

System: Reactor Core Isolation Cooling System (RCIC)

Valve(s): CHK-2-13C-50 CHK-3-13C-50

Category: A (containment isolation), C (self-actuating)

Function: These normally closed check valves are located in the RCIC turbine exhaust line to suppression pool and perform an ACTIVE safety function in the OPEN direction. The valves must be capable of opening upon system initiation to route the maximum expected exhaust steam to the suppression pool when the RCIC pump is operating at rated flow. Failure of CHK-2(3)-13C-50 to go to the full open position during RCIC turbine/pump operation could create excessive back pressure in the exhaust line resulting in an isolation signal to the RCIC system. The RCIC turbine trips upon receipt of a high exhaust pressure signal thereby rendering the system incapable of performing its design safety function.

These valves also performs an ACTIVE safety function in the CLOSED direction. They are identified as a containment isolation valves for penetrations N-212 and N-217B. As such, CHK-2(3)-13C-50 must be capable of closure to maintain containment integrity in the event of a loss of pressure boundary of the exhaust line, or when RCIC is no longer required for accident mitigation. The RCIC steam exhaust line terminates below minimum suppression pool water level at penetration N-212. However, at penetration N-217B the exhaust line communicates with the suppression pool freespace.

Testing Requirement(s): Check valves shall be exercised nominally every 3 months as required by ISTC 4.5.

Basis for Relief: CHK-2(3)-13C-50 are 10" swing type check valves. They are not equipped with remote or local position indication. Verification of valve closure requires the installation of test equipment and performance of a seat leakage or reverse pressurization test.

Currently, PBAPS satisfies the exercise testing requirement of the ASME Code by performance of the following tests:

1. Quarterly verification of exhaust line pressure less than 20 psig during HPCI pump testing for the forward exercise test.

2. Local Leak Rate Testing (LLRT) on a refueling outage frequency for the reverse exercise test (Refueling Outage Justification ROJ-13C-1).

Recently, PBAPS implemented Option B of 10 CFR 50 Appendix J which allows test frequencies to be adjusted based on performance. This has created a potential mismatch between the refueling outage frequency for testing CHK-2(3)-13C-50 for IST and the Option B frequency for the LLRT.

Relief is requested to perform the reverse exercise test at the frequency specified by App. J Option B. The bases for relief is two-fold; 1) the proposed alternative provides an acceptable level of quality and safety, and 2) compliance results in hardship without a compensating increase in safety.

The proposed alternative provides an acceptable level of quality and safety

The only safety function performed by CHK-2(3)-13C-50 in the reverse direction is containment isolation. The exercising requirements of ISTC 4.5 verify the valve obturator has traveled to its seat on cessation of flow. In the case of CHK-2(3)-13C-65, a simple exercise test per ISTC 4.5 would not provide the data necessary to verify the ability of the valves to perform their Category A function. A leakrate or reverse pressurization test provides the necessary information. The Category A containment isolation function is assured through performance of LLRTs. The PBAPS Primary Containment Leak Rate Test Program (PCLRT) provides for corrective actions, including test frequency adjustments, or valve repair or replacement if performance is poor.

As discussed in NUREG 1482, Section 4.1.4, the OM Code allows testing of check valves which require the installation of test equipment to be performed on a refueling outage frequency. Option B requires testing at a 30 month frequency (i.e., essentially on a refueling outage frequency based on a 2 year operating cycle and the need to be shutdown to perform the testing) unless performance history dictates a frequency extension. Good LLRT performance assures CHK-2(3)-13C-50 are functioning as required. In addition, the valves are exercised on a quarterly frequency during RCIC pump testing. While this quarterly exercising does not verify the valves are leaktight, it does provide some data indicating the valves are functioning properly.

As discussed above, CHK-2(3)-13C-50 are identified as containment isolation valve for penetrations N-212 and N-217B. Penetration N-212 discharges below the minimum torus water level which would be seen under design basis accident conditions. Therefore, for this penetration, the containment isolation function of CHK-2(3)-13C-50 is not required due to the presence of a water seal.

Penetration N-217B discharges into the torus air space. CHK-2(3)-13C-50 are credited as the outboard containment isolation valves with MO-2(3)-13C-4(5)244 credited as the inboard isolation valves. System design provides an additional barrier to containment leakage. Also in the flowpath, and immediately downstream from and in series with CHK-2(3)-13C-50, are HV-2(3)-13C-9. They are locked open, lift type check valves with a handwheel to allow for manual closure. In the locked open position, the valve disc is free to lift and allow forward flow of turbine exhaust to the suppression pool. In the reverse direction (from the suppression pool), flow is over the valve disc, which aids in holding the disc against the seat. While no credit is taken for this function and the valves are not tested in the PCLRT Program, HV-2(3)-13C-9 provide an additional barrier to prevent primary containment leakage.

The discussion above demonstrates that 1) the PCLRT Program adequately ensures the operational readiness of CHK-2(3)-23C-65 to perform their containment isolation function, 2) system design provides for multiple barriers to preclude containment leakage in the event of a design basis accident, and 3) the existing testing provides an acceptable level of quality and safety.

Compliance would result in hardship without a compensating increase in quality or safety

Testing of CHK-2(3)-13C-65 at a refueling outage frequency will require the development of new test procedures to satisfy IST requirements or the performance of the associated LLRT every refueling outage even in the case of a good performance history. Additional testing costs and radiation exposure will also be incurred. The test takes 12-16 man-hours to complete. During refueling outages, manpower is at a premium, and work management and coordination is vital. Personnel safety and keeping radiation exposure As Low As Reasonably Achievable (ALARA) are also important goals. Because leak rate testing at the Option B frequency provides adequate assurance of the check valves ability to perform the containment isolation function, there is not a compensating increase in the level of quality or safety achieved through more frequent reverse exercise testing.

Alternate Testing: CHK-2(3)-13C-50 will be exercised in the forward direction during quarterly HPCI pump testing, and in the reverse direction during the performance of leak rate testing in accordance with the PBAPS PCLRT Program.

VALVE RELIEF REQUEST - 23C-VRR-1

System: High Pressure Coolant Injection System (HPCI)

Valve(s): CHK-2-23C-65 CHK-3-23C-65

Category: A (containment isolation), C (self-actuating)

Function: These normally closed check valves are located in the HPCI turbine exhaust line to suppression pool and performs an ACTIVE safety function in the OPEN direction. The valves must be capable of opening upon system initiation to route the maximum expected exhaust steam to the suppression pool when the HPCI pump is operating at rated flow. Failure of this valve to go to the full open position during HPCI turbine/pump operation could create excessive back pressure in the exhaust line resulting in a trip signal to the HPCI turbine.

CHK-2(3)-23C-65 also performs an ACTIVE safety function in the CLOSED direction. They are identified as containment isolation valves for penetrations N-214 and N-217B. As such, they must be capable of closure to maintain containment integrity by preventing the release of radioactive materials to secondary containment in the event of a loss of pressure boundary of the exhaust line, or when HPCI is no longer required for accident mitigation. The HPCI steam exhaust line terminates below minimum suppression pool water level at penetration N-214. However, at penetration N-217B the exhaust line communicates with the suppression pool freespace.

Testing Requirement(s): Check valves shall be exercised nominally every 3 months as required by ISTC 4.5.

Basis for Relief: CHK-2(3)-23C-65 are 20" swing type check valves. They are not equipped with remote or local position indication. Verification of valve closure requires the installation of test equipment and performance of a seat leakage or reverse pressurization test.

Currently, PBAPS satisfies the exercise testing requirement of the ASME Code by performance of the following tests:

1. Quarterly verification of exhaust line pressure less than 37 psig during HPCI pump testing for the forward exercise test.

2. Local Leak Rate Testing (LLRT) on a refueling outage frequency for the reverse exercise test (Refueling Outage Justification ROJ-23C-1).

Recently, PBAPS implemented Option B of 10 CFR 50 Appendix J which allows test frequencies to be adjusted based on performance. This has created a potential mismatch between the refueling outage frequency for testing CHK-2(3)-23C-65 for IST and the Option B frequency for the LLRT.

Relief is requested to perform the reverse exercise test at the frequency specified by App. J Option B. The bases for relief is two-fold; 1) the proposed alternative

provides an acceptable level of quality and safety, and 2) compliance results in hardship without a compensating increase in safety.

The proposed alternative provides an acceptable level of quality and safety

The only safety function performed by CHK-2(3)-23C-65 in the reverse direction is containment isolation. The exercising requirements of ISTC 4.5 verify the valve obturator has traveled to its seat on cessation of flow. In the case of CHK-2(3)-23C-65, a simple exercise test per ISTC 4.5 5 would not provide the data necessary to verify the ability of the valves to perform their Category A function. A leakrate or reverse pressurization test provides the necessary information. The Category A containment isolation function is assured through performance of LLRTs. The PBAPS Primary Containment Leak Rate Test Program (PCLRT) provides for corrective actions, including test frequency adjustments, or valve repair or replacement if performance is poor.

As discussed in NUREG 1482, Section 4.1.4, the OM Code allows testing of check valves which require the installation of test equipment to be performed on a refueling outage frequency. Option B requires testing at a 30 month frequency (i.e., essentially on a refueling outage frequency based on a 2 year operating cycle and the need to be shutdown to perform the testing) unless performance history dictates a frequency extension. Good LLRT performance assures CHK-2(3)-23C-65 are functioning as required. In addition, the valves are exercised on a quarterly frequency during HPCI pump testing. While this quarterly exercising does not verify the valves are leaktight, it does provide some data indicating the valves are functioning properly.

As discussed above, CHK-2(3)-23C-65 are identified as containment isolation valve for penetrations N-214 and N-217B. Penetration N-214 discharges below the minimum torus water level which would be seen under design basis accident conditions. Therefore, for this penetration, the containment isolation function of CHK-2(3)-23C-65 is not required due to the presence of a water seal.

Penetration N-217B discharges into the torus air space. CHK-2(3)-23C-65 are credited as the outboard containment isolation valves with MO-2(3)-23B-4(5)245 credited as the inboard isolation valves. An additional barrier to containment leakage is provided by HV-2(3)-23C-12, which is immediately downstream from and in series with CHK-2(3)-23C-65. These valves are locked open, lift type check valves with a handwheel to allow for manual closure. In the locked open position, the valve disc is free to lift and allow forward flow of turbine exhaust to the suppression pool. In the reverse direction (from the suppression pool), flow is over the valve disc, which aids in holding the disc against the seat. While no credit is taken for this function and the valves are not tested in the PCLRT Program, HV-2(3)-23C-12 provide an additional barrier to prevent primary containment leakage.

The discussion above demonstrates that 1) the PCLRT Program adequately ensures the operational readiness of CHK-2(3)-23C-65 to perform their containment isolation function, 2) system design provides for multiple barriers to preclude containment leakage in the event of a design basis accident, and 3) the existing testing provides an acceptable level of quality and safety.

Compliance would result in hardship without a compensating increase in quality or safety

Testing of CHK-2(3)-23C-65 at a refueling outage frequency will require the development of new test procedures to satisfy IST requirements or the performance of the associated LLRT every refueling outage even in the case of a good performance history. Additional testing costs and radiation exposure will also be incurred. The test takes 12-16 man-hours to complete. During refueling outages, manpower is at a premium, and work management and coordination is vital. Personnel safety and keeping radiation exposure As Low As Reasonably Achievable (ALARA) are also important goals. Because leak rate testing at the Option B frequency provides adequate assurance of the check valves ability to perform the containment isolation function, there is not a compensating increase in the level of quality or safety achieved through more frequent reverse exercise tests.

Alternate Testing: CHK-2(3)-23C-65 will be exercised in the forward direction during quarterly HPCI pump testing, and in the reverse direction during the performance of leak rate testing in accordance with the PBAPS PCLRT Program.

VALVE RELIEF REQUEST - 33-VRR-1, Rev. 1

System:	Emergency Service Water
Valve(s):	MO-0-33-0498
Category:	B
Function:	Provide isolation of ESW return to the normal heat sink
Test Requirements:	Exercise and stroke time nominally every 3 months as required by ISTC 4.2.1
Basis for Relief:	The function of this valve is to isolate the ESW System discharge to create a closed loop system for emergency heat sink operation. MO-0-33-0498 is the only power operated valve in the ESW System single discharge line to the Conowingo Pond. When the valve is in the full open position, the ESW System is aligned in its normal configuration and is OPERABLE. When MO-0-33-0498 is closed, an ESW pump and a booster pump are started providing the required flows to all safety-related equipment served by ESW. However, the ESW booster pumps do not meet separation criteria requirements and cannot be relied upon to support the ESW pumps in maintaining system design flow rates to safety related equipment served by the ESW system in the event of a design basis accident. Failure of MO-0-33-0498 in the closed position could result in flow rates to components served by ESW to fall below their design values. Exercising this valve to the closed position during power operation, with a subsequent failure to reopen, would render the ESW system inoperable. Testing shall be deferred to at least once each year when river temperature is less than or equal to 53° F (PECO Calculation PM-0989). At this temperature, adequate heat removal is provided to the safety related equipment dependent upon ESW without reliance on the support of the ESW booster pumps when ESW is aligned to the emergency heat sink.
Alternate Testing:	MO-0-33-0498 shall be full stroke exercised tested and stroke timed annually when river temperature is less than or equal to 53° F.

VALVE RELIEF REQUEST - 33-VRR-2, Rev. 1

System:	Emergency Service Water
Valve(s):	AO-0-33-0241A,B,C,D
Category:	B
Function:	Provide isolation of ESW cooling water flow to the diesel generator air cooler jacket water cooler and lube oil cooler
Test Requirements:	Stroke time results shall be compared to the initial reference values for the determination of stroke time acceptance criteria per ISTC 4.2.8.
Basis for Relief:	AO-0-33-0241A(B,C,D) are normally closed air operated valves located in the outlet line from the emergency diesel generator (EDG) jacket water cooler. The valves perform an ACTIVE safety function in the OPEN position. They must be capable of automatically opening upon receipt of a diesel start signal. This function allows ESW cooling water flow to circulate through the air cooler, lube oil cooler, and the jacket water cooler to avoid damage to the engine due to overheating. The valves have no designated maximum design stroke time associated with its safety function in the open position. However, ESW flow must be provided to the engine within 90 seconds of receiving a start signal. AO-0-33-0241A(B,C,D) fails to the open position on a loss of its non-safety related air supply or on a loss of 480V control power to the associated air supply solenoid valve. As a result of commitments made to the USNRC concerning verification of design basis cooling water flowrates to the diesels, and in response to GL 89-13, a routine test is performed every six weeks. This test full stroke exercises AO-0-33-0241A(B,C,D), verifies the valves will pass the required design flowrate, makes adjustments as required to ensure flowrates to individual EDGs are adequate, and balances flowrates between EDGs. The valves are provided with mechanical stops to allow adjustment of stroke length and, consequently, flowrate. Current valve stroke times range from 10 to 15 seconds as dictated by the testing described above. If adjustments are made to the valve(s) stroke length, the test procedure requires performance of stroke time testing per IST Program requirements.

As a result of GL 89-13 concerns, frequent adjustments in the stroke length of AO-2-33-0241A(B,C,D) are made. These adjustments would result in the need to frequently revise the stroke time acceptance criteria of ISTC 4.2.8 contained in the implementing IST surveillance test procedure. In addition to resulting in the need to revise the affected procedure, the flow verification/balancing could result in failure to meet the acceptance criteria specified in ISTC 4.2.8 and thus require subsequent corrective action per the requirements of ISTC 4.2.9(b). These corrective actions would not be warranted since the valves have been shown by visual observation and by verification of meeting design basis flowrates to be in good working order just prior to stroke timing. Due to the level of test activity associated with these valves, degradation would be detected without applying the stroke time acceptance criteria specified in ISTC 4.2.8. In addition, although not considered skid-mounted, the valves are also verified to be functioning properly by virtue of satisfactory diesel generator testing.

In summary, the discussion provided above demonstrates that the testing of AO-2-33-0241A(B,C,D) currently performed provides an acceptable level of quality and safety. In addition, compliance with the requirements of ISTC 4.2.8 would result in hardship (i.e., the costs associated with frequent procedure revisions and possible test failures) without a compensating increase in the level of quality and safety.

Alternate Testing:

A limiting stroke time of 20 seconds shall be established for AO-2-33-0241A(B,C,D) in accordance with ISTC 4.2.4 and corrective actions shall be performed in accordance with ISTC 4.2.9. The stroke time acceptance criteria specified in ISTC 4.2.8 shall not be applied. The valves shall continue to be tested every six weeks as described above in accordance with PECO Energy commitments made to address issues identified in GL 89-13.