July 31, 2000

Mr. James A. Hutton
Director-Licensing, MC 62A-1
PECO Energy Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, PA 19087-0195

SUBJECT: THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN REQUEST FOR RELIEF NOS. RR-08, RR-10, RR-17, RR-23, RR-24, RR-25, RR-26, RR-27, RR-28, RR-29, RR-30, RR-31, RR-32, AND RR-33 FOR PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 (TAC NOS. MA4008 AND MA4009)

Dear Mr. Hutton:

The staff with technical assistance from its contractor, the Idaho National Engineering and Environmental Laboratory (INEEL) has reviewed and evaluated the information provided by PECO Energy Company (licensee) by letter dated August 13, 1998, proposing its third 10-year interval inservice inspection program plan requests for relief for Peach Bottom Atomic Power Station, Units 2 and 3. Additional information was provided by the licensee in its letters dated October 8, and November 11, 1999, and March 3, 2000. For Requests for Relief Nos. RR-08, 10, 23, 24, 25, 28, 29, 30, 31, 32, and 33, relief has been granted pursuant to 10 CFR 50.55a(g)(6)(i) or alternatives authorized pursuant to 10 CFR 50.55a(a)(3). Request for Relief Nos. RR-17 and RR-26 were unacceptable, and therefore, denied. Request for Relief No. RR-27 was withdrawn.

The staff's evaluation and conclusions are contained in the staff's safety evaluation provided in the enclosure. Attachment 1 is the INEEL Technical Letter Report. This completes TAC Nos. MA4008 and MA4009.

Sincerely,

/RA/

James W. Clifford, Chief, Section 2
Project Directorate 1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-277 and 50-278

Enclosure: Safety Evaluation

cc w/encl: See next page

July 31, 2000

Mr. James A. Hutton
Director-Licensing, MC 62A-1
PECO Energy Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, PA 19087-0195

SUBJECT: THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN REQUEST FOR RELIEF NOS. RR-08, RR-10, RR-17, RR-23, RR-24, RR-25, RR-26, RR-27, RR-28, RR-29, RR-30, RR-31, RR-32, AND RR-33 FOR PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 (TAC NOS. MA4008 AND MA4009)

Dear Mr. Hutton:

The staff with technical assistance from its contractor, the Idaho National Engineering and Environmental Laboratory (INEEL) has reviewed and evaluated the information provided by PECO Energy Company (licensee) by letter dated August 13, 1998, proposing its third 10-year interval inservice inspection program plan requests for relief for Peach Bottom Atomic Power Station, Units 2 and 3. Additional information was provided by the licensee in its letters dated October 8, and November 11, 1999, and March 3, 2000. For Requests for Relief Nos. RR-08, 10, 23, 24, 25, 28, 29, 30, 31, 32, and 33, relief has been granted pursuant to 10 CFR 50.55a(g)(6)(i) or alternatives authorized pursuant to 10 CFR 50.55a(a)(3). Request for Relief Nos. RR-17 and RR-26 were unacceptable, and therefore, denied. Request for Relief No. RR-27 was withdrawn.

The staff's evaluation and conclusions are contained in the staff's safety evaluation provided in the enclosure. Attachment 1 is the INEEL Technical Letter Report. This completes TAC Nos. MA4008 and MA4009.

Sincerely,
/RA/
James W. Clifford, Chief, Section 2
Project Directorate 1
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-277 and 50-278
Enclosure: Safety Evaluation
DISTRIBUTION:

PUBLIC	PDI-2 Reading	E. Adensam	J. Clifford	M. O'Brien
B. Buckley	OGC	G. Hill (4)	ACRS	M. Oprendek, RGNI
				J. Shea, EDO, RGNI

Accession No.ML003728069 *See previous concurrence

PDI-2/PM	PDI-2/LA	EMEB*	EMCB*	OGC*	PDI-2/SC
B.Buckley	S.Little for M.O'Brien	K.Manoly	T.Sullivan	M.Young	J.Clifford
7/31/00	7/27/00	7/ 6 /00	6/28/00	7/21/00	7/31/00

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FOR

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION

PROGRAM PLAN REQUEST FOR RELIEF NOS.

RR-08, RR-10, RR-17, RR-23, RR-24 THROUGH RR-30, RR-31, RR-32, AND RR-33

FOR

PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3

PECO ENERGY COMPANY

DOCKET NOS. 50-277 AND 50-278

1.0 INTRODUCTION

Inservice inspection of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Under 10 CFR 50.55a(a)(3), proposed alternatives to the requirements of paragraphs 50.55a(c)-(h)may be used, when authorized by the U.S. Nuclear Regulatory Commission (NRC), if (i) the proposed alternative would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, third 10-year ISI interval is the 1989 Edition of the ASME B&PV Code.

2.0 EVALUATION

The NRC staff, with technical assistance from Idaho National Engineering and Environmental Laboratory (INEEL), has reviewed the information concerning ISI Program Requests for Relief RR-08, RR-17, RR-23, RR-24, RR-25, RR-26, RR-27, RR-28, RR-31, RR-32, and RR-33 submitted for the third 10-year intervals for PBAPS Units 2 and 3 in PECO Energy Company's (PECO, the licensee) letter dated August 13, 1998. Additional information was provided by the licensee in its letters dated October 8, and November 11, 1999, and March 3, 2000. Relief requests RR-10, RR-29, and RR-30 were evaluated by the NRC only and are addressed in this safety evaluation (SE) prepared by the NRC staff.

For Requests for Relief RR-08, RR-24, RR-28, and for alternatives contained in Requests for Relief Nos. RR-17, RR-23, RR-25, RR-26, RR-31, and RR-33, the staff adopts the evaluations and recommendations for granting relief or authorizing alternatives or denying requests for relief contained in the Technical Letter Report (TLR), included as Attachment 1, prepared by INEEL.

Based on a determination that the requirements of the code are impractical, relief is granted, and alternatives imposed, for Requests for Relief RR-08, RR-24, and RR-28, pursuant to 10 CFR 50.55a(g)(6)(i). Alternatives proposed in Requests for Relief RR-23, RR-31, RR-32, and RR-33 are authorized pursuant to 10 CFR 50.55a(a)(3)(i) based on proposed alternatives that provide an acceptable level of quality and safety. Request for Relief RR-25 is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) in that compliance would result in a hardship or unusual difficulty without a compensating increase in quality or safety. Request for Relief 17 is denied because the licensee failed to show that the proposed alternative to perform a visual examination of the piping, in conjunction with the VT-3 visual of system supports, would provide an acceptable level of quality and safety for the subject discharge lines. In addition, the licensee has not provided sufficient information to describe the magnitude of the hardship that might be incurred, if required to install pressure taps in order to perform the Code-required testing. Request for Relief 26 is denied because the proposed alternative does not provide an acceptable level of quality and safety because it failed to show the alternative will provide reasonable assurance of the continued structural integrity of welds in the reactor coolant system. Request for Relief 27 was withdrawn by the licensee in its letter dated October 8, 1999. Requests for Relief RR-10, RR-29, and RR-30 are evaluated below.

Request for Relief RR-10 (Revision 1):

Code Requirements:

The 1989 Edition of ASME, Section XI, Subsection IWF, provides requirements for the inspection and testing of Class 1, 2, 3, and MC component supports. Article IWF-2000 provides the examination rules for component supports. They are summarized in Table IWF-2500, Examination Category F-A, which specifies VT-3 visual examination of supports each inspection interval.

Code Case N-491-1 provides for the sampling of a portion of the support population as an alternative selection criteria to IWF-2500. It will be implemented at PBAPS Units 2 and 3, during the third 10-year interval.

Article IWF-5000 provides the inservice inspection requirements for snubbers. Paragraph IWF-5300(a) specifies that inservice examinations shall be performed in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988) using the VT-3 visual examination method in IWA-2213. IWF-5300(b) specifies that inservice tests shall be performed in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (published in 1988).

Proposed Alternative:
The examination and functional testing of snubber assemblies from pin-connection to pin-connection at PBAPS Units 2 and 3, will be performed in accordance with TRM 3.16. These examinations will be performed in lieu of the inspection and testing requirements of IWF-2000 and IWF-5000.

The general requirements of Subsection IWA, such as examination methods, personnel qualifications, etc., still apply. Additionally, all repairs, replacements, records and reports will be in accordance with Section XI.

Licensee's Basis for the Proposed Alternative:
"Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety. Also, pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested on the basis that compliance with Section XI requirements will result in a hardship without a compensating increase in the levels of quality and safety.

PBAPS Units 2 and 3 performs examinations and functional tests of all safety-related snubber assemblies in accordance with Technical Requirements Manual (TRM) 3.16. This program was previously contained in the Technical Specifications (TSs) and was implemented during the second 10-year interval. It must also be implemented during the third 10-year interval. The purpose of the TRM 3.16 program is to assure and demonstrate operational readiness and structural integrity of snubbers through testing and examination. The examination criteria for snubbers from pin-connection to pin-connection meet this objective. Therefore, performance of the ASME, Section XI, examinations on snubber assemblies would be redundant.

PBAPS Units 2 and 3 has procedures in place to implement the TRM 3.16 program. The examinations are performed by qualified personnel and meet the intent of the inspections and tests of ASME Section XI. PECO has determined that implementation of TRM 3.16 for both Units 2 and 3 will assure an acceptable level of quality and safety, and that compliance with the provisions of ASME, Section XI, for snubber assemblies would not result in a compensating increase in safety and quality."

Staff's Evaluation:
The licensee stated in the August 13, 1998, letter, that, in lieu of using OM-4 (which is referenced by ASME Code, Article IWF-5000), the alternative examination and testing program, in accordance with TRM 3.16 requirements, will be performed for the third 10-year ISI interval. This program was previously contained in the TSs and was implemented during the second 10-year interval. The examination and functional testing of snubber assemblies from pin-connection to pin-connection at Peach Bottom 2 & 3 will be performed in accordance with TRM 3.16. The licensee stated that these

examinations can be adequately performed in lieu of the inspection and testing requirements of IWF-2000 and IWF-5000 of ASME Code, Section XI.

PECO has procedures in place at PBAPS Units 2 and 3 to implement the TRM 3.16 program. The examinations are performed by qualified personnel and meet the intent of the inspections and tests of ASME Code, Section XI. Implementation of TRM 3.16 for both Units 2 and 3 will assure an acceptable level of quality and safety in that it demonstrates operational readiness and structural integrity of snubbers through testing and examination.

Based on the information provided by the licensee, the staff determined that the licensee has presented an adequate justification for relief from the requirements of IWF-2000 and the OM-1988 Addenda to the OM-1987 Edition, Part 4 (which is referenced by ASME Code 1989 Edition, Section XI, Article IWF-5000), with regard to visual examination and functional testing of PBAPS Units 2 and 3 snubbers. The staff has determined that the proposed alternative use of the TRM for PBAPS Units 2 and 3 snubber activities would provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative is authorized for the third 10-year interval of the PBAPS Units 2 and 3 ISI program.

Request for Relief RR-29 (Revision 0)

Code Requirement:
ASME Code, Section XI, IWA-7000, provides the requirements that must be implemented whenever an item is replaced. IWA-7000 establishes both technical and administrative criteria.

Proposed Alternative:
Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety.

Licensee's Basis for the Proposed Alternatives:
"Currently, when a snubber or relief valve is removed for purposes of testing, the following two options are available:

1) Maintain the system or portion of the system in a degraded condition, while complying with the PBAPS Units 2 and 3 TRM, until the removed item is tested, refurbished if required, and reinstalled.

2) Replace the item being tested with a "like" item, and test the removed item at a later date.

Per ASME, Section XI, the rotation of snubbers and relief valves, as addressed in the second option, is required to be treated as a Code replacement that must meet the requirements of IWA-7000. This entails the use of Replacement Programs, Replacement Plans, suitability evaluations, review and concurrence by the ANII, and maintenance of NIS-2 forms or other Section XI documentation to record the replacement. Such controls are appropriate when items are replaced for the purpose of design changes, failures, or expiration of component life, but are excessive for the

removal and installation of snubbers and relief valves solely for the purpose of testing. ASME, Section XI, developed Code Case N-508-1 to address this inconsistency in the Code. Due to the nine provisions within the Code Case, the alternative criteria only eliminates the inappropriate administrative controls and documentation requirements associated with an ASME Section replacement. All other aspects of the replacement such as design, manufacture, ASME, Section XI, pressure testing requirements, operational limits and settings are still maintained. In addition, the implementation of Code Case N-508-1 does not change the testing requirements provided in the Peach Bottom Atomic Power Station Technical Requirements Manual.

Code Case N-508-1 does not alter any Section XI requirements if a removed item requires any repair or replacement of Code parts. As required by paragraph (i) of the Code Case, repair or replacement of the removed item, when required, shall be performed in accordance with IWA-4000 for repairs and IWA-7000 for replacements. Because of this requirement, if the removed item requires the repair or replacement of a Code item, then this activity will be treated as a Section XI repair or replacement, and the required Section XI documentation will be generated.

The use of ASME Code Case N-508-1 as an alternative to IWA -7000 for the rotation of snubbers and relief valves for the purpose of testing, provides a reduction in inappropriate administrative requirements and documentation. All technical requirements (e.g., design, fabrication, installation, testing, etc.) are still maintained in a manner that provides an acceptable level of quality and safety that is consistent with the criteria of ASME, Section XI.

PBAPS, Units 2 and 3, will use Code Case N-508-1 in its entirety."

Staff's Evaluation:

Currently, the ASME Code, Section XI, Article IWA-7000, requires that snubber and pressure relief valve rotation be performed in compliance with a repair/replacement program. The program requires the preparation of a replacement plan, completion and submittal of a Code Form NIS-2, and an evaluation, review and concurrence by an authorized nuclear inspector. Code Case N-508-1 provides an alternative to the ASME Code, Section XI, Article IWA-7000, requirement to generate a replacement program when removing snubbers and pressure relief valves from a system for testing. The Code Case allows snubbers and pressure relief valves to be rotated from stock and installed on components and piping systems within the Section XI boundary, provided all the requirements stated in the Code Case are met. Therefore, for normal rotation of operable snubbers and pressure relief valves with those items from stock, it is the Owner's responsibility to maintain traceability of the affected snubbers and pressure relief valves, but no Code-required documentation (i.e., NIS-2 Forms) is required.

The staff concludes that the proposed alternative to use the Code Case for the purpose of snubber and pressure relief valve rotation associated with testing provides an acceptable level of quality and safety in that the snubber or pressure relief valve rotation and testing is similar to that performed in accordance with IWA-7000.

The staff concludes that the licensee's proposed alternative use of Code Case N-508-1 for rotation of serviced snubbers and pressure relief valves for the purpose of testing in lieu of ASME Code, Section XI, Article IWA-7000, requirements, may be authorized, pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year interval. This is based on the determination that the alternative provides reasonable assurance of operational readiness and thus, provides an acceptable level of quality and safety. Use of the Code Case is authorized for the third 10-year interval or until such time as the Code Case is referenced in a future revision of 10 CFR 50.55a. At that time, if the licensee intends to continue to implement Code Case N-508-1, the licensee is to follow all provisions in the Code Case with limitations or conditions specified in 10 CFR 50.55a, if any.

Request for Relief 30

Code Requirement:
ASME Code, Section XI, IWA-4000 and IWA-7000, provide general requirements for performing repairs and replacements.

Proposed Alternative:
The licensee proposed to use ASME Code, Section XI, Division 1, Code Case N-516-1, "Underwater Welding," in its entirety for underwater welding of Class 1, 2, and 3 components with the following stipulation:

"When welding is to be performed on high neutron fluence Class 1 material, then a mockup, using material with similar fluence levels, should be welded to verify that adequate crack prevention measures were used."

Licensee's Basis for the Proposed Alternative:
"Pursuant to 10 CFR 50.55a, relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety.

ASME Section XI, IWA-4000 and IWA-7000, do not address the requirements for welded repair or installation of replacement items by welding on ASME Class 1, 2, and 3 pressure boundary components when welding is performed underwater. To address this issue ASME, Section XI, has issued Code Case N-516-1, "Underwater Welding". Code Case N-516-1 provides welding methods and requirements that may be used when welding for a repair or replacement activity is performed underwater.

Code Case N-516-1 was approved by the ASME Boiler and Pressure Vessel code Committee on December 31, 1996, but is not yet endorsed in the most recent listing of NRC approved code cases provided in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME, Section XI, Division 1". The previous version of the Code Case N-516, was endorsed in Draft Revision 12 of Regulatory Guide 1.147, but this original version does not address underwater repairs and replacements made on P-No.1 carbon steel components, PECO Energy requests the implementation of Code Case N-516-1.

PECO Energy considers the requirements for performing underwater welding provided in Code Case N-516-1 to be an improvement over the existing requirements, and

therefore regards these requirements as providing an acceptable level of quality and safety."

Staff's Evaluation:

The staff is currently reviewing Code Case N-516-1 for inclusion in 10 CFR 50.55a. Code Case N-516-1 provides guidelines for underwater welding of P-No. 1, P-No. 8, and P-No. 4X materials. The 1989 Edition, ASME Code, Section XI, IWA-4000 and IWA-7000, does not address the requirements for welded repair or installation of replacement items by welding on ASME Class 1, 2, and 3, pressure boundary components when welding is performed underwater.

The staff considers Code Case N-516-1 acceptable for use, provided that for welding of highly irradiated materials, a mockup, using material with similar fluence levels, is used to demonstrate that cracks do not result. The licensee has proposed this additional requirement as part of its request to use Code Case N-516-1.

On the basis of its review of the licensee's submittal, the staff has determined that the use of Code Case N-516-1 for underwater welding of Class 1, 2, and 3, components of P-No. 1, P-No. 8, and P-No. 4X materials is acceptable in that it provides assurance of weld integrity, and, therefore, an acceptable level of quality and safety.

The licensee's proposed alternative to use Code Case N-516-1 is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year ISI interval or until such time as Code Case N-516-1 is referenced in a future revision of 10 CFR 50.55a. At that time, if the licensee intends to continue to implement Code Case N-516-1 the licensee is to follow all provisions in the code case with limitations or conditions specified in 10 CFR 50.55a, if any.

3.0 CONCLUSION

The staff concludes that for Requests for Relief RR-08, RR-24, and RR-28, the Code requirements are impractical and the alternatives provide reasonable assurance of structural integrity of the subject components. Therefore, Requests for Relief RR-08, RR-24, and RR-28 are granted and alternatives imposed, pursuant to 10 CFR 50.55a(g)(6)(i). The relief granted is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that would result if the requirements were imposed on the facility.

The alternatives contained in requests for Relief RR-10, RR-23, RR-30, RR-31, RR-32, and RR-33 provide an acceptable level of quality and safety and are authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year inservice inspection interval. In addition, for Request for Relief No. RR-23 (the use of Code Case N-546), RR-30 (the use of Code Case N-516-1), Request for Relief No. RR-31 (the use of Code Case N-532), Request for Relief 32 (the use of Code Case N-566-1), and RR-33 (the use of Code Case N-598) are authorized for the third interval or until such time as the code cases are referenced in a future revision of 10 CFR 50.55a. At that time, if the licensee intends to continue to implement Code Cases N-546, N-516-1, N-532, N-566-1, and N-598, the licensee is to follow all provisions in the code cases with limitations or conditions specified in 10 CFR 50.55a, if any.

For Request for Relief RR-25 and RR-29, the imposition of the Code requirements would result in a significant hardship without a compensating increase in the level of quality and safety. The staff concludes that for Request for Relief RR-25, the alternative provides reasonable assurance of structural integrity of the subject components in the licensee's request for relief. For RR-29, the use of Code Case N-508-1 is authorized for the third 10-year interval or until such time as the Code Case is referenced in a future revision of 10 CFR 50.55a. At that time, if the licensee intends to continue to implement Code Case N-508-1, the licensee is to follow all provisions in the Code Case with limitations or conditions specified in 10 CFR 50.55a, if any. Therefore, the alternatives in Requests for Relief RR-25 and RR-29 are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the third 10-year inservice inspection interval.

Request for Relief 17 is denied because the licensee failed to show that the proposed alternative to perform a visual examination of the piping, in conjunction with the VT-3 visual of system supports, would provide an acceptable level of quality and safety for the subject discharge lines. In addition, the licensee has not provided sufficient information to describe the magnitude of the hardship that might be incurred, if required to install pressure taps in order to perform the Code-required testing. Request for Relief 26 is denied because the proposed alternative does not provide an acceptable level of quality and safety because it failed to show the alternative will provide reasonable assurance of the continued structural integrity of welds in the reactor coolant system. Request for Relief 27 was withdrawn by the licensee in its letter dated October 8, 1999.

Principal Contributors: T. McLellan
A. Lee
B. Buckley

Date: July 31, 2000

TECHNICAL LETTER REPORT (TLR)
ON THIRD 10-YEAR INTERVAL INSERVICE INSPECTION
REQUEST FOR RELIEF NOS. RR-08, RR-17, AND RR-23 THROUGH RR-28, AND RR-31, RR-32, AND RR-33 FOR
PECO ENERGY COMPANY
PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3
DOCKET NOS. 50-277 AND 50-278

1.0 INTRODUCTION

By letter dated August 13, 1998, the licensee, PECO Energy Company (PECO), submitted Request For Relief Nos. RR-08, RR-10, RR-17, and RR-23 through RR-33, seeking relief from the requirements of the ASME Code, Section XI, or approval of alternatives for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. In letters dated October 8, and November 11, 1999, and March 3, 2000, the licensee responded to a Request for Additional Information (RAI) offering clarification on three relief requests and withdrawing one. These requests are for the third 10-year inservice inspection (ISI) interval. The Idaho National Engineering and Environmental Laboratory (INEEL) evaluation of requests for relief Nos. RR-08, RR-17, RR-23 through RR-28, and RR-31, RR-32, and RR-33 is in the following section. The evaluation of Relief Requests RR-10, RR-29, and RR-30 was performed by the U.S. Nuclear Regulatory Commission (NRC) staff and their findings are delineated in the NRC Safety Evaluation to which this TLR is attached.

2.0 EVALUATION

The information provided by PECO in support of the requests for alternatives to, or relief from, Code requirements, has been evaluated and the bases for disposition are documented below. The Code of record for the PBAPS Units 2 and 3 third 10-year ISI intervals, which began November 5, 1998 and August 15, 1998, respectively, is the 1989 Edition of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code.

2.1 Request for Relief RR-08, Examination Category C-A, Item C1.10, Pressure Retaining Welds in Class 2 Pressure Vessels

Code Requirement: Subsection IWC, Table IWC-2500-1, Examination Category C-A, Item Number C1.10 requires 100 percent volumetric examination of the circumferential shell welds in Class 2 pressure vessels as detailed in Figure IWC-2500-1 each inspection interval.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5)(iii), relief is requested from examining 100 percent of the Code-required volume of weld 10-2HXA-1.

Licensee's Basis for Relief Request:
"There are four Residual Heat Removal (RHR) heat exchangers in each unit at the Peach Bottom Atomic Power Station. All eight RHR heat exchangers have the same

configuration, which is shown in Figure No. RR-081[1]. In accordance with ASME, Section XI, Code requirements, examinations will be performed on shell-to-flange welds 10-2HXA-1 and 10-2HXA-2, which are the upper and lower circumferential shell welds in the "A" RHR heat exchanger in each unit. Upper shell-to-flange weld 10-2HXA-1 can only be examined from one side of the weld due to the configuration of the flange. In addition, access for a one-sided examination is limited due to the weld crown configuration. Approximately 15 percent of the required examination volume is inaccessible for examination due to the above conditions.

Partial examination of weld 10-2HXA-1, coupled with the complete examination of weld 10-2HXA-2, will provide adequate assessment of the heat exchanger Class 2 welds. In addition, all welds in the heat exchangers are subject to VT-2 visual examination during routine system leakage testing."

Licensee's Proposed Alternative Examination:
"As an alternative examination, Peach Bottom Atomic Power Station, Units 2 and 3, will examine weld 10-2HXA-1 to the extent practical, which is expected to achieve approximately 85 percent coverage. Weld 10-2HXA-2 will be examined in its entirety."

Evaluation: The Code requires that the subject Class 2 pressure vessel circumferential shell weld be 100 percent volumetrically examined during the inspection interval. Examination from inside the vessel is not possible due to the configuration of the flange. Inspection from the outside of the vessel is restricted due to the weld configuration. Based on the information provided in this request for relief, it is impractical to examine the subject welds to the extent required by the Code. In order to obtain the required examination coverage, redesign and modification of the pressure vessels would be necessary. Imposition of this requirement would result in a significant and unnecessary burden on the licensee.

The licensee proposes to perform the volumetric examinations of weld 10-2HXA-1 on the "A" RHR heat exchanger in each unit to the maximum extent practical, which is approximately 85 percent coverage. In addition, the licensee will perform 100 percent volumetric examination on the lower shell-to-flange weld, 10-2HXA-2, and perform VT-2 visual examinations during routine system pressure testing. Based on the visual examinations and the significant volumetric examination coverage proposed by the licensee, reasonable assurance of continued structural integrity will be provided. Therefore, it is recommended that relief be granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.2 Request for Relief RR-17, Examination Category D-B, Item D2.10, and IWD-5223(f), System Hydrostatic Test Requirements for Safety or Relief Valve Discharge Piping

Code Requirement: Examination Category D-B, Item Number D2.10 requires a system hydrostatic test each inspection interval for pressure retaining components of systems which support emergency core cooling and residual heat removal. For safety or relief valve piping which discharges into the containment suppression pool, IWD-5223(f) requires a pneumatic test that demonstrates leakage integrity (performed at a pressure

[1]Figures, drawings and attachments supplied by the licensee are not included in this report.

of 90 percent of the pipe submergence head of water) in lieu of a system hydrostatic test.

Licensee's Proposed Alternative: Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee proposed to perform the Code-required Category D-A integral attachment examinations and the Code-required F-A support examinations for the Main Steam Relief Valve (MSRV) discharge pipes, as described in the PBAPS ISI Program in lieu of the Code hydrostatic test. The licensee stated:

"The Code-required examinations of the support system (hangers and integral attachments) include a visual examination of the integral attachments on the MSRV discharge lines. Additionally, while the examiners are performing these examinations, they observe the piping and are obligated by plant procedures to report any additional observed abnormal conditions."

Licensee's Basis for Proposed Alternative:
"Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested on the basis that compliance with Section XI requirements would result in hardship without a compensating increase in the levels of quality and safety.

The application of Code Case N-498-1 provides an alternative to the performance of the 10-year system hydrostatic pressure test, and thereby eliminates the need to invoke subparagraph IWD-5223(f) of ASME, Section XI. Code Case N-498-1 allows substitution of a system leakage test for the hydrostatic test. Paragraph IWC-5221 of the Code allows the test pressure to be the nominal operating pressure during system operation. This pressure is (nominally) the atmospheric pressure in the containment. Examination during main steam and containment system operation (with containment pressurized) would need to be in an inert atmosphere. None of the lines would be pressurized, unless a relief valve had opened. Examination during the Class 1 test would also require access to the torus and vents. These are areas that are isolated and normally not accessible to personnel during the Class 1 pressure test. Therefore, performance of this test would represent a considerable safety hazard to personnel, and would not be practical.

Additionally, PECO Energy, in the effort to comply with the Code requirements, has considered using the criteria presented in IWD-5223(f) for guidance. In order to pressure test all lines, the installation of pressure taps would be required on some of the lines. This would require cutting into the pressure boundary and attaching, by welding, new access points for the introduction of pressurized fluid into the lines. This work would be required inside the Containment structure during a refueling outage. Personnel would receive a radiation dose proportionate to their length of time spent in the work area. Implementing modifications to allow the performance of this testing would result in undue hardship without a compensating increase in safety. PECO Energy has determined that any pressure testing method would represent a hardship without a compensating increase in the levels of quality and safety.

The performance of a low-pressure test or an in-service test in compliance with the Section XI Code and Code Case would not be of a sufficient pressure to adequately test

the structural integrity of the MSRV discharge piping. The nominal pipe wall thickness ranges from 0.365 inch to 0.375 inch.

Additionally, these lines experience very little time in service, and are only in service during unplanned openings of the relief valves. Routine, inservice testing of the relief valves, by remotely operating the relief valves, has been discontinued as a revision to the PBAPS Inservice Test Program. Thus, the actual time that the line is expected to be in service has been lessened even further. There is very little time during which the piping is in service. The minimal in-service time does not warrant the performance of routine testing due to the passive nature of the pipe.

These lines are located in a non-harsh environment. The outside diameter of the pipe is in nitrogen atmosphere during plant operation. During shut-downs, it is in ambient atmosphere suitable for personnel access. The inside of the pipe is subject to infrequent pressurization and contact with reactor coolant in the event of an unplanned relief valve discharge. The coolant is high quality steam from demineralized water. The inside of the pipe is not exposed to standing water. Any low level leakage past the valve will not lay stagnant in the lines because they are sloped away from the valve to the suppression chamber.

During a relief valve blow-down, the support system (hangers and integral attachments) applies significant stresses to the pipe. These stresses occur immediately following the opening of the relief valve. The stresses are included in the qualification of the piping system. The examinations of the support system (hangers and integral attachments) are not affected by this relief request and are performed as described in the ISI Program and ASME Section XI requirements.

Therefore, performance of a plant modification and performance of the pressure testing of the Main Steam Relief Valve discharge lines represents a hardship with no compensating increase in plant safety."

Evaluation: The licensee has proposed to perform the Code-required VT-3 visual examinations of the support system (hangers and integral attachments) in lieu of the hydrostatic test required by the Code. The licensee states that, while the examiners are performing these examinations, they observe the piping and are obligated by plant procedures to report any abnormal conditions observed for the piping. However, this superficial inspection, performed along with the Code-required VT-3 visual of the supports, alone, does not provide reasonable assurance that the pressure boundary of this piping is being maintained.

It is noted that the licensee's ISI Program states that Code Case N-498-1 will be implemented during the Third 10-Year Interval. Code Case N-498-1 allows the hydrostatic test to be performed at normal operating pressure. In order to pressure test all lines, the installation of pressure taps would be required on some of the lines. This would require cutting into the pressure boundary and welding new access points for performing and monitoring these pressure tests. The licensee has stated that installing pressure taps would be a hardship that is not justified for these lines, due to the radiation dose that would be incurred to install the pressure taps. Therefore, the licensee has determined that a pressure test (at the normal operating pressure allowed

by N-498-1) is not feasible. Based on the limited information available in the licensee's submittal, the extent of this hardship is unclear.

The only existing method for pressurizing the subject lines is by cycling the pressure relief valves. The licensee states that flow through the subject steam discharge lines from the pressure relief valves to the torus is no longer routinely performed, as the inservice test program (IST) has eliminated testing of these valves. However, elimination of periodic testing of an active component does not provide a reasonable basis for discontinuing the pressure testing of these discharge lines. If the discharge lines fail to provide their intended pressure boundary function when required to divert steam to the torus, an over-pressurization of containment is possible.

The licensee has failed to show that the proposed alternative, to perform a visual examination of the piping in conjunction with the VT-3 visual of system supports, will provide an acceptable level of quality and safety for the subject discharge lines. In addition, the licensee has not provided sufficient information related to the magnitude of the hardship that might be incurred, if required to install pressure taps in order to perform the Code-required testing. Therefore, it is recommended that the licensee's alternative not be authorized.

The NRC staff notes that the issue of hydrostatically testing the discharge lines may be applicable to several Boiling Water Reactor (BWR) owners, if the discontinuation of IST on the pressure relief valves is widespread. If this is the case, the licensee may elect to address the hydrostatic testing of these type of lines as a generic issue through the BWR Owners' Group.

2.3 Request for Relief RR-23, Code Case N-546, *Alternative Requirements for Qualification of VT-2 Examination Personnel Section XI, Division 1*

Code Requirement: Paragraph IWA-2312 requires personnel performing nondestructive examinations not listed (visual) in SNT-TC-1A to be qualified and certified to comparable levels of qualification as defined in SNT-TC-1A and the Employer's written practice.

Licensee's Proposed Alternative: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee proposed using Code Case N-546, *Alternative Requirements for Qualification of VT-2 Examination Personnel Section XI, Division 1,* in lieu of the requirements of IWA-2312. The licensee stated:

"Peach Bottom Atomic Power Station, Units 2 and 3, will use the provisions of Code Case N-546 in its entirety as an alternative to the requirements of Section XI, IWA-2300 for qualifying VT-2 visual examiners."

Licensee's Basis for Proposed Alternative:
"Pursuant to 10CFR50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives would provide an acceptable level of quality and safety.

Section XI currently requires personnel conducting VT-2 inspections to be qualified and certified to comparable levels of qualification as defined in SNT-TC-1A and the

Employer's written practice. However, unlike the nondestructive testing methods addressed within SNT-TC-1A, or VT-1 and VT-3 examination methods, VT-2 examinations do not require any special knowledge of underlying technical principles to perform the examination. It is only a straight forward examination to look for evidence of leakage or structural distress. No special skills or technical training are required in order to observe water dripping from a component or bubbles forming on a wetted joint. As such, VT-2 personnel should not be subject to the same qualification and certification requirements that were established for nondestructive testing personnel. Code Case N-546 provides more appropriate requirements for the qualification and certification of VT-2 examination personnel.

Code Case N-546 requires that personnel performing VT-2 visual inspections have at least forty (40) hours of plant walkdown experience, receive a minimum of four (4) hours of training on Section XI requirements, and pass the vision test requirements of IWA-2321, 1995 Edition. This alternative to the existing Code requirements reduces the administrative burden of maintaining a Section XI qualification and certification program for VT-2 examiners, and allows the use of personnel most familiar with the walkdown of plant systems, such as licensed and non-licensed operators, local leak rate test personnel, system engineers, and examination personnel. The quality of VT-2 visual examinations will be maintained by using the alternative qualification criteria of the Code Case.

Code Case N-546 was approved by the ASME Boiler and Pressure Vessel Code Committee on August 24,1995, but is not yet included in the most recent listing of NRC approved Code Cases provided in Draft Revision 12 of Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI, Division 1."

Note: During the second inservice inspection interval, Code Case N-546 was submitted under Relief Request RR-14.

Evaluation: The Code requires that VT-2 visual examination personnel be qualified to levels of competency comparable to those identified in the American National Standards Institute (ANSI) N45.2.6. The Code also requires that the examination personnel be qualified for near and far distance vision acuity. In lieu of the Code requirements, the licensee proposed to implement Code Case N-546 for personnel performing VT-2 visual examinations. This Code Case includes the following requirements:

1. At least 40 hours plant walkdown experience, such as that gained by licensed and non-licensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination personnel.

2. At least 4 hours of training on Section XI requirements and plant-specific procedures for VT-2 visual examination.

3. Vision test requirements of IWA-2321, 1995 Edition.

The qualification requirements in Code Case N-546 are not significantly different from those for VT-2 visual examiner certification. Licensed and non-licensed operators, local leak rate personnel, system engineers, and inspection and nondestructive examination

personnel typically have a sound working knowledge of plant components and piping layouts. This knowledge makes them acceptable candidates for performing VT-2 visual examinations.

In addition to meeting the requirements contained in Code Case N-546, the licensee has committed to use procedural guidelines for consistent, quality VT-2 visual examinations, verify and maintain records of the qualification of persons selected to perform VT-2 visual examinations, and perform independent reviews and evaluations of leakage by a person(s) other than those that performed the VT-2 visual examination. Based on a review of Code Case N-546 and the additional commitments made by the licensee, the INEEL staff believes that the proposed alternative to the Code requirements will provide an acceptable level of quality and safety. Therefore, it is recommended that the licensee's request to implement Code Case N-546 with the additional commitments be authorized pursuant to 10 CFR 50.55a(a)(3)(i). Use of this Code Case should be authorized until such time as the Code Case is published in a future revision of Regulatory Guide (RG) 1.147. At that time, if the licensee intends to continue to implement this Code Case, the licensee is to follow all provisions in the Code Case with limitations or conditions specified in RG 1.147, if any.

2.4 Request for Relief RR-24, Examination Category B-D, Item B3.100, Reactor Pressure Vessel (RPV) Nozzle Inner Radius Section

Code Requirement: Examination Category B-D, Item B3.100 requires 100 percent volumetric examination of all RPV nozzle inner radius sections as defined by Figs. IWB-2500-7(a) through (d), as applicable, each inspection interval.

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5) the licensee has requested relief from performing the Code required volumetric examinations for the Unit 2 and 3 Standby Liquid Control Nozzle Inner Radius Section, Component Numbers N10-IRS.

Licensee's Basis for Requesting Relief (as stated):
"The Standby Liquid Control (SLC) nozzle, as shown in Figure RR-24-1, is designed with an integral socket to which the boron injection piping is fillet welded. This design is different than any of the configurations shown in ASME Section XI, Figure No. IWB-2500-7. The SLC nozzle is located in the bottom head of the vessel in an area that is inaccessible for ultrasonic examinations from the inside of the vessel. Therefore, ultrasonic examinations would need to be performed from the outside diameter of the vessel. As shown in Figure RR-24-1, the ultrasonic examinations would need to travel through the full thickness of the vessel into a complex cladding/socket configuration. These geometric and material reflectors inherent in the design prevent a meaningful examination from being performed on the inner radius of the SLC nozzle. In addition, the inner radius socket attaches to piping that injects boron at locations far removed from the nozzle. Therefore, the SLC nozzle inner radius is not subjected to turbulent mixing conditions that are a concern at other nozzles."

Licensee's Proposed Alternative Examination:
"As an alternative examination, Peach Bottom Atomic Power Station, Units 2 and 3, will perform a VT-2 visual examination of the subject nozzles each refueling outage in conjunction with the Class 1 System Leakage Test."

Evaluation: The Code requires 100 percent volumetric examination of the subject RPV nozzle inner radius sections. However, as shown in the drawing provided by the licensee, the nozzle configuration and inside geometry prevent obtaining meaningful examination results from the outside of the RPV. The nozzle is inaccessible for examination from inside the vessel due to the location of the nozzle in the RPV lower head area and due to the SLC piping inside the vessel which is fillet welded into the nozzle socket. These restrictions make the Code required examinations impractical to perform. To complete the examinations as required by the Code, the licensee would have to redesign and modify the RPV and SLC piping. Imposition of the Code requirements would result in a considerable and unnecessary burden on the licensee.

The licensee is not able to obtain coverage of the 2-inch SLC nozzle inner radius section. In addition, because of the design of the nozzle, the SLC nozzle inner radius is not subjected to turbulent mixing conditions that are a concern at other nozzles. However, there are several other inner radius sections on similarly-sized nozzles in the reactor pressure vessel which are examined per Code requirements. Therefore, any significant patterns of degradation should be detected by the other examinations and reasonable assurance of the structural integrity of these nozzles should be provided.

Based on the impracticality of meeting the Code coverage requirements for the subject nozzle inner radius sections, and the reasonable assurance provided by the examinations that can be completed, it is recommended that relief be granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.5 Request for Relief RR-25, Examination Category C-H, Item Nos. C7.30 and C7.40, System Functional, Inservice and Hydrostatic Pressure Tests for Class 2 Reactor Vessel Flange Leak-off Piping

Code Requirement: Examination Category C-H, Item No. C7.30, requires VT-2 visual examinations of all Class 2 pressure retaining piping in conjunction with system inservice and functional pressure tests performed per IWC-5221 each inspection period. Examination Category C-H, Item No. C7.40, requires VT-2 visual examinations of all Class 2 pressure retaining piping in conjunction with system hydrostatic pressure tests performed per IWC-5222 each inspection interval.

Licensee's Proposed Alternative: Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee proposed performing a VT-2 visual examination on the RPV flange leak-off piping at less than functional pressure during vessel flood-up each refueling outage in lieu of the system functional pressure test requirements of IWC-5221. The licensee stated:

"A VT-2 visual examination will be performed on the line during vessel flood-up during a refueling outage. The hydrostatic head developed due to the water above the vessel flange during flood-up will allow for the detection of any gross indications in the line.

This examination will be performed with the frequency specified by Table IWC-2500-1 for and IWC-5221 test (once each inspection period)."

Licensee's Basis for Proposed Alternative:
"Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested on the basis that compliance with Section XI requirements would result in hardship without a compensating increase in the levels of quality and safety.

The Reactor Vessel Head Flange Leak-Off Line is separated from the reactor pressure boundary by one passive membrane, which is an O-ring located on the vessel flange (see Figures RR-25-1 and RR-25-2). This line is required during plant operation in order to indicate failure of the inner flange seal O-ring. Failure of the O-ring would result in the annunciation of a High Level Alarm in the control room. Failure of the inner O-ring is the only condition under which the line is pressurized.

The configuration of this system precludes system testing while the vessel head is removed because the odd configuration of the vessel tap (see Figure RR-25-2) coupled with the high test pressure requirement, prevents the tap in the flange from being temporarily plugged or connected to other piping. The opening in the flange is only 3/16 of an inch in diameter and is smooth walled, making the effectiveness of a temporary seal very limited. Failure of this seal could possibly cause ejection of the device used for plugging or connecting to the vessel.

The configuration also precludes pressure testing with the vessel head installed, because the seal prevents complete filling of the line, which has no vent available. Additionally, a pneumatic test performed with the head installed is precluded due to the configuration of the top head. The top head of the vessel contains two grooves that hold the O-rings. The O-rings are held in place by a series of retainer clips that are housed in recessed cavities in the flange face. If a pressure test were performed with the head on, the inner O-ring would be pressurized in a direction opposite to what it would see in normal operation. This test pressure would result in a net inward force on the inner O-ring that would tend to pump it into the recessed cavities that house the retainer clips. The thin O-ring material would very likely be damaged by this inward force.

In addition to the problems associated with the O-ring design that preclude this testing, it is also questionable whether a pneumatic test is appropriate for this line. The use of a pneumatic test performed at RPV nominal operating pressure would represent an unnecessary safety risk to personnel in the unlikely event of a test failure, due to the large amount of stored energy contained in the pressurized air.

Operational testing of this line is precluded because the line will only be pressurized in the event of a failure of the inner O-ring. It is extremely impractical to purposely fail the inner O-ring in order to perform a test.

Based on the above, Peach Bottom Atomic Power Station, Units 2 and 3, requests the [above] alternative examination be performed on the Reactor Vessel Head Flange Seal Leak-Off Lines."

Evaluation: For systems not required to operate during normal plant operation, the Code requires VT-2 visual examinations of Class 2 pressure retaining piping in conjunction with system functional pressure tests performed per IWC-5221 each inspection period. Per IWC-5221, system functional pressure tests are required to be performed at nominal system pressure. They are not normally pressurized during plant operation. The subject seal leak-off lines function to detect failure of the inner flange seal O-ring. In the event of leakage past the O-ring, the pressure of the associated Reactor Vessel Head Flange Seal Leak-Off Line would increase. The increase in pressure would be annunciated in the control room to alert plant operators.

Failure of the inner flange O-ring seal could result in the seal leak-off line being pressurized to normal reactor operating pressure. When the vessel head is removed, functional pressure can only be achieved by plugging the tap for the leak-off line in the reactor vessel flange and pressurizing the leak-off line to normal reactor operating pressure. Due to the design of the tap, the leak-off line cannot be reliably plugged. Failure of this seal could possibly cause ejection of the device used for plugging or connecting to the vessel plug. When the vessel head is installed, pressure testing the seal leak-off lines at functional pressure applies pressure to the inner O-ring seal in the reverse direction and could result in damage to the inner O-ring. Compliance with the Code functional pressure testing requirements without significant hazards to equipment or personnel would require modifications to the vessel flange, the flange seal, and/or the flange seal leak-off lines.

The licensee has proposed performing VT-2 visual examinations of the seal leak-off lines at reduced pressure, using the hydrostatic head of the water above the vessel flange during flood-up of the refueling cavity. The licensee's proposed alternative would detect gross indications and would provide assurance of structural integrity. Therefore, compliance with the Code requirements would result in personnel and equipment hazards, or would require modifications, that would result in hardship for the licensee without a compensating increase in the level of quality and safety.

Based on the determination that compliance with the Code requirements to perform system functional pressure tests of the Reactor Vessel Head Flange Seal Leak-Off Line at nominal pressure would result in hardship without a compensating increase in the level of quality and safety, it is recommended that the licensee's proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

2.6 Request for Relief RR-26, Examination Category B-J, Item Nos. B9.11, B9.21, B9.31, B9.32 and B9.40, Circumferential, Branch Connection and Socket Welds in Class 1 Piping

Code Requirement: Subsection IWB, Table IWB-2500-1, Examination Category B-J, Item Nos. B9.11, B9.21, B9.31, B9.32, and B9.40, require surface and/or volumetric examination of circumferential, branch connection, and socket welds in Class 1 piping as detailed in Figures IWB-2500-8, -9,-10, and -11, each inspection interval. The Code requires welds to be selected for examination per the criteria of Table IWB-2500-1, Examination Category B-J, Notes (1) and (2).

Licensee's Proposed Alternative: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee proposed that welds examined under Generic Letter 88-01 not be included in the total population of Class 1, Examination Category B-J, welds subject to Section XI examination. Additionally, the licensee proposed to use the selection criteria of the 1989 Edition of Section XI with the exception that all terminal ends be examined in each pipe or branch run connected to other components in lieu of the requirements of Table IWB, Examination Category B-J, Note (1)(b). Further, the licensee proposed that additional examinations per Note (1)(d) be prorated based on the number of non-exempt welds in each system, system structural discontinuities, and the number of system non-exempt welds in each line size. The licensee stated:

When determining the total population of Class 1, Examination Category B-J welds subject to examination, those welds which are addressed by Generic Letter 88-01 will not be repeated in the Code weld count. Therefore, the 25 percent sample population required for Examination Category B-J will only include those welds that are not otherwise covered by Generic Letter 88-01. The 25 percent sample will be selected as follows:

Peach Bottom Atomic Power Station, Units 2 and 3, will select Examination Category B-J welds for examination such that 25 percent of the total non-exempt welds are examined during the interval. These welds will then be reexamined during subsequent intervals per Table IWB-2500-1, Note 2. The weld population selected for examination shall include the following:

A. All terminal ends in each pipe or branch run connected to vessels.
B. All terminal ends in each pipe or branch run connected to other components.
C. All dissimilar metal welds between combinations of:

    (a) carbon or low alloy steels to high alloy steels,
    (b) carbon or low alloy steels to high nickel alloys,
    (c) high alloy steels to high nickel alloys.

D. Additional piping welds so that the total number of circumferential butt welds (or branch connection or socket welds) selected for examination equals 25 percent of the total number of non-exempt circumferential butt welds (or branch connection or socket welds) in the reactor coolant piping system. These additional piping welds shall be distributed as follows:

    (a) The examinations shall be distributed among the Class 1 systems prorated, to the degree practicable, on the number of non-exempt welds in each system (i.e., if a system contains 30 percent of the non-exempt welds, then 30 percent of the nondestructive examinations required by Examination Category B-J should be performed on that system);
    (b) Within a system, the examinations shall be distributed among structural discontinuities prorated, to the extent practicable, on the number of non-exempt structural discontinuities in that system, and;
    (c) Within each system, examinations shall be distributed between line sizes prorated, to the degree practicable, on the number of non-exempt welds in each line size.

Note: Structural discontinuities include pipe weld joints to valve bodies, pump casings, and pipe fittings such as elbows, tees, reducers, and flanges. A pipe-to-pipe weld is not considered a structural discontinuity."

Licensee's Basis for Proposed Alternative:
"Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety.

There are two issues that will be addressed concerning the selection of Examination Category B-J welds for examination. The first issue is the effect that NRC Generic Letter 88-01 has on the examination of Class 1 welds subject to Intergranular Stress Corrosion Cracking (IGSCC). The second issue is the application of the stress-based selection criteria presented in ASME, Section XI, Table IWB-2500-1, Examination Category B-J, Note (1). Request No. RR-26 will address both of these issues. The implementation of Generic Letter 88-01 has a direct effect on the population of Class 1 welds subject to examination. There is significant overlap in systems and portions of systems that are required to be inspected by both Generic Letter 88-01 and ASME, Section XI. In order to simplify record keeping and assure that the Peach Bottom Atomic Power Station meets its commitments regarding Generic Letter 88-01 and Code inspections, the Class 1 austenitic stainless steel piping subject to Generic Letter 88-01 will be kept separate from the ASME weld count. This means that the 25 percent sample population required for Class 1 piping will only include those welds that are not otherwise covered by the Generic Letter. This is appropriate for the following reasons:

For all Examination Category B-J welds, where the Code and Generic Letter 88-01 are applicable, the required examination methods and frequency of Generic Letter 88-01 are more restrictive. The least restrictive Generic Letter 88-01 designation is Category A. The examination requirements and frequency for that Category is a 25 percent sample over ten years. This is the same criteria that the Code requires for Class 1 piping. All other Generic Letter 88-01 categories require inspections more frequently. Therefore, any piping within the scope of Generic Letter 88-01 will be inspected at a rate that meets or exceeds that specified by the Code.

- Per Generic Letter 88-01, surface examinations will be performed once per interval on each weld selected within the Class 1 boundaries. This meets the requirements of ASME, Section XI. The only exception to this are those Category E welds that have been repaired by a weld overlay. The inspections on these welds will be in accordance with criteria in Generic Letter 88-01. This is acceptable, since the Code does not address these welds.

- The examination personnel that perform inspections on piping subject to Generic Letter 88-01 meet special qualification requirements. The examiners performing Generic Letter 88-01 examinations are qualified in accordance with an NRC approved program that NRC and the BWR industry have established. Proficiency is demonstrated on test blocks with actual IGSCC flaws. This ensures the examination personnel are qualified to perform the examinations. This exceeds Code requirements.

- Flaw evaluations performed on piping subject to Generic Letter 88-01 (regardless of Class) must satisfy the Class 1 rules of the Code contained in IWB-3600 of the 1986 Edition of Section XI.

- The results of the examinations are provided to NRC. When flaws exceed the acceptance criteria, but are determined by evaluation to be acceptable for return to service, the NRC approval is obtained prior to operation. This meets or exceeds Code requirements.

The ANII (authorized nuclear inservice inspector) will review the Class 1 piping examinations as specified by Section XI. Once the total population of welds subject to Examination Category B-J requirements has been determined, the Code stress-based selection criteria need to be addressed. At the time Peach Bottom Atomic Power Station, Units 2 and 3, were constructed, the ASME Boiler and Pressure Vessel Code only addressed nuclear vessels. Therefore, the designated code of record for nuclear piping was USAS B31.1.0 - 1967 Edition, rather than Section III of the ASME Boiler and Pressure Vessel Code. Because the stress intensity range and usage factor described in Table IWB-2500-1, Examination Category B-J, Note 1 (b), are parameters associated with ASME, Section III piping designs, this information does not currently exist for all the ISI Class 1 piping at Peach Bottom Atomic Power Station, Units 2 and 3. Although USAS B31.1.0 - 1967 established design and stress criteria for ISI Class 1 piping at Peach Bottom, Units 2 and 3, it differs from that required by ASME, Section III, and does not correlate to specific weld locations.

As allowed by 10 CFR 50.55a(b)(2)(ii), the criteria used for the selection of Examination Category B-J welds during the first and second intervals at Peach Bottom Atomic Power Station, Units 2 and 3, were based on ASME, Section XI, 1974 Edition with Addenda through Summer 1975. This weld selection methodology required the examination of a different 25 percent of the piping welds each inspection interval, such that 100 percent of the welds will be examined by the end of the 40 year licensing period. To continue selecting welds in this manner will result in considerable man-rem exposure to prepare new welds for examination each interval. Additionally, this method does not ensure that potentially high stressed welds are reexamined over the course of plant life to monitor for service induced degradation.

Use of the proposed alternative weld selection methodology described herein will help to maintain the radiation expended for weld preparation "As Low As Reasonably Achievable". In addition, the selection methodology of this Request has been designed to choose those welds which have a greater probability of being subject to higher stress levels. Putting emphasis on the examination of potentially higher stressed welds will meet the intent of the Code and improve the overall quality and safety levels of the ISI Program.

Based on these reasons, Peach Bottom Atomic Power Station, Units 2 and 3, requests relief from the ASME, Section XI, Table IWB-2500-1, Notes 1 and 2 requirements, regarding the selection of Examination Category B-J welds for examination."

Evaluation: The 1989 Edition of the Code requires that 25 percent of the total Examination Category B-J circumferential, branch connection, and socket welds be selected for examination per the criteria of Table IWB-2500-1, Examination Category B-J, as follows:

(1) All terminal ends in each pipe or branch run connected to vessels.
(2) All terminal ends in each pipe or branch run connected to other components where the stress levels exceed either of the following limits under loads associated with the specific seismic events and operational conditions:
    (a) primary plus secondary stress intensity range of $2.4S_m$ for ferritic steel and austenitic steel,
    (b) cumulative usage factor *U* of 0.4.
(3) All dissimilar metal welds between combinations of:
    (a) carbon or low alloy steels to high alloy steels,
    (b) carbon or low alloy steels to high nickel alloys,
    (c) high alloy steels to high nickel alloys.
(4) Additional piping welds so that the total number of circumferential butt welds (or branch connection or socket welds) selected for examination equals 25 percent of the circumferential butt welds (or branch connection or socket welds) in the reactor coolant piping system. This total does not include welds excluded by IWB-1220. These additional welds may be located in one loop.

The licensee proposed to use the selection criteria of the 1989 Edition of Section XI, except that examinations will include all terminal ends in each pipe or branch run connected to other components in lieu of the Code selection requirement (2) above. The licensee also proposed that the additional examinations of Code selection requirement (4) above be prorated based on the number of non-exempt welds in each system, system structural discontinuities, and the number of system non-exempt welds in each line size. The licensee's basis for this proposal is that values for stress intensity ranges and usage factors do not exist for all Class 1 piping at PBAPS Units 2 and 3 since the original design code was USAS B31.1-1967. However, it is unclear whether the licensee's proposal to prorate additional welds based on line size and number of structural discontinuities in various Class 1 systems will provide reasonable assurance for the continued structural integrity of the reactor coolant system.

In addition, the licensee has proposed to exclude all ASME Category B-J welds that are currently examined per Generic Letter (GL) 88-01 from the population of welds required by the Code to be considered for determining the total examination sample. This could effectively reduce the number of welds required to be examined under ASME Section XI. The licensee's basis for this part of the proposal is that GL 88-01 and Code examination requirements are redundant, and that the examinations required by GL 88-01 meet or exceed the examination requirements of the Code. However, the examination requirements of GL 88-01 were imposed as "augmented examinations" due to industry problems associated with the phenomena of intergranular stress corrosion cracking. By removing these examinations from the total weld population defined by the Code, it is unclear whether the intent of either the Code or the GL would be met. For the reasons cited above, the staff is unable to determine if the licensee's proposal provides an acceptable level of quality and safety. Therefore, it is recommended that the proposed alternative not be authorized at this time.

If the licensee chooses to re-submit this relief to address the concerns discussed above, the licensee should submit a detailed comparison of the examinations required by the 1989 Code (with the exception of those required due to item 2 above - using stress analyses) to those that would result from the licensee's proposal to enable the staff to evaluate all technical issues surrounding this request. The comparison should clearly indicate the total populations and sample sizes for each Class 1 system, including the bases for selection in accordance with the licensee's proposed items 1 through 4, the number of GL 88-01 Category A through G welds in each system and Code examinations which are credited by performing GL 88-01 examinations.

2.7 Request for Relief RR-27, Examination Category C-F-2, Item Nos. C5.51 and C5.81 Circumferential Welds in Class 2 Piping

Note: In response to the NRC Request for Additional Information (RAI), the licensee withdrew Request for Relief RR-27.

2.8 Request for Relief RR-28, Examination Category B-J, Item B9.11, Pressure Retaining Circumferential Welds in Class 1 Piping

Code Requirement: Subsection IWB, Table IWB-2500-1, Examination Category B-J, Item Number B9.11 requires surface and volumetric examination of circumferential welds in Class 1 piping NPS 4 or larger as detailed in Figure IWB-2500-8 each inspection interval. The Code requires selection of welds per the criteria of Table IWB-2500-1, Examination Category B-J, Notes (1) and (2).

Licensee's Code Relief Request: Pursuant to 10 CFR 50.55a(g)(5)(iii) , relief is requested from the surface and volumetric examination requirements of the Code for the inaccessible Examination Category B-J, Item Number B9.11 welds listed on the following table.

Category B-J Welds					
System	Penetration	Line No.	Line Size	Unit 2 Weld Nos.	Unit 3 Weld Nos.
Main Steam	N-7A N-7B N-7C N-7D	1DBN-26"-A 1DBN-26"-B 1DBN-26"-C 1DBN-26"-D	26" 26" 26" 26"	1-A-13A 1-B-16A 1-C-16A 1-D-13A	1-A-13A 1-B-16A 1-C-16A 1-D-13A
Feedwater	N-9A N-9B	6DDNL-24" 6DDNL-24"	24" 24"	6-A-9A 6-B-8A	6-A-9A 6-B-8A
HPCI	N-11	23DBN-10"	10"	23-0-17A	23-0-17A
RHR (Pump Supply)	N-12	10DCN-20" (Unit 2) 10DCA-20" (Unit 3)	20"	10-0-16A 10-0-16B	None (See Note 1)
RHR (Pump Discharge)	N-13A	10DE-24" (Unit 2) 10DCA-24" (Unit 3)	24"	10-IA-2A	None (See Note 1)
	N-13B	10DE-24" (Unit 2) 10DCA-24" (Unit 3)	24"	10-IB-2A	None (See Note 1)
Core Spray	N-16A N-16B	14DCN-12" 14DCN-12"	12"	14-A-3B 14-B-3B	14-A-3A 14-B-3A

NOTE: (1) Penetrations N-12, N-13A and N-13B in Unit 3 were replaced in 1988. The replacement assemblies do not have inaccessible welds.

Licensee's Basis for Relief Request:
"Pursuant to 10 CFR 50.55a(g)(5), relief is requested on the basis that conformance with the Code requirements is impractical for the facility.

Each of the lines identified in Table RR-28-1 penetrates the primary containment by means of a penetration assembly similar in design to that shown in Figure RR-28-1. Each of these lines have at least one pressure retaining circumferential weld that is inaccessible for surface and volumetric examinations due to the design of the penetration assembly. PECO Energy Company considers welds at anchor points to be terminal ends. This is consistent with stress analysis calculation methods. See [the above table] for a listing of the applicable lines and associated inaccessible weld(s).

As stated in 10 CFR 50.55a(g)(1) and (g)(4), for plants whose construction permits were issued prior to January 1, 1971, components shall meet the requirements set forth in ASME, Section XI, to the extent practical within the limitations of design, geometry and materials of construction of the components. Since ASME, Section XI, examination requirements did not exist at the time the Peach Bottom Atomic Power Station, Units 2 and 3, were designed, examination accessibility was not a primary consideration. As

Figure RR-28-1 illustrates, the penetration design prohibits the performance of surface or volumetric examination on the weld inside the penetration.

Based on the information provided, PECO Energy requests relief from the ASME, Section XI, requirements to perform surface and volumetric examinations on the subject welds."

Licensee's Proposed Alternative Examination:
"Where a terminal end weld is inaccessible, the adjacent weld (or, if the adjacent weld in inaccessible, the next accessible weld) in the same section of pipe (as sectioned by the stress analysis) will be examined in lieu of the terminal end weld.

In addition, the welds inside the penetrations are subject to periodic pressure testing in accordance with ASME, Section XI, Table IWB-2500-1, Examination Category B-P."

Evaluation: The Code requires surface and volumetric examinations of 25 percent of the Examination Category B-J welds in accordance with the selection criteria of Table IWB-2500-1, Examination Category B-J, Notes (1) and (2). Per the licensee's basis for relief and the typical penetration drawing provided by the licensee (Figure RR-28-1), the Examination Category B-J welds listed in the above table are inaccessible. Therefore, it is impractical to perform volumetric and surface examinations of these welds. Imposition of the Code requirements would require significant redesign or replacement of components without a compensating increase in the level of quality or safety.

Furthermore, where a terminal end weld is inaccessible, the licensee will examine the adjacent weld (or if the adjacent weld is inaccessible, the next accessible weld) in the same section of pipe as classified by the stress analysis. This methodology should provide reasonable assurance of the overall structural integrity of the pressure retaining welds.

Based on the impracticality associated with examination of the subject welds, the burden on the licensee if the Code requirements were imposed and the reasonable assurance of structural integrity provided by the alternative examinations, it is recommended that relief be granted pursuant to 10 CFR 50.55a(g)(6)(i).

2.9 Request for Relief RR-31, Use of Code Case N-532, *Alternative Requirements for Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000, Section XI, Division 1*

Code Requirement: Subarticles IWA-4800, -6200, and -7500 require the Owner to prepare preservice and inservice inspection summary reports for Class 1 and Class 2 pressure retaining components and their supports. Paragraph IWA-6230 also requires that these summary reports be submitted to the enforcement and regulatory authorities that have jurisdiction at the plant site within 90 days of the completion of the inservice inspections conducted each refueling outage.

Licensee's Proposed Alternative: Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee proposed using Code Case N-532 in its entirety in lieu of the Code documentation and reporting requirements of IWA-4800, -6200 and -7500.

Licensee's Basis for Proposed Alternative:
"Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety.

ASME, Section XI, has recently reevaluated the Code criteria for reporting inservice inspection results, repairs and replacements, and has concluded that the current requirements are no longer effective. To address this issue, ASME, Section XI, has issued Code Case N-532, "Alternative Requirements to Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000". Code Case N-532 provides an alternative to the current ASME, Section XI, repair and replacement documentation requirements as well as regulatory reporting requirements relating to inservice inspection. This alternative is intended to reduce the resources required to prepare NIS-2 forms and prepare and submit the ISI Summary Report required by ASME, Section XI, 1989 Edition, after each refueling outage. This is a significant reduction in the administrative burden required by ASME, Section XI, IWA-6000. The use of Code Case N-532 only affects documentation and reporting requirements and does not affect the level of quality or safety provided by the Inservice Inspection Program.

Code Case N-532 was approved by the ASME Boiler and Pressure Vessel Code Committee on December 12, 1994, but is not yet endorsed in the most recent listing of NRC approved code cases provided in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME, Section XI, Division 1".

The NRC Staff has made recommendations supporting the development of Code Case N-532 in SECY-94-093, "NRC Staff Assessment of Reporting Requirements for Power Reactor Licensees". The use of Code Case N-532 is consistent with the recommendations of SECY-94-093 and provides more meaningful documentation to the regulatory and enforcement authorities having jurisdiction at the plant.

This request to use Code Case N-532 includes compliance with the Code Case with the following clarification regarding reporting of "corrective measures". ASME, Section XI, uses the term "corrective measures" in two different ways. One use of the term involves Code required activities such as repairs and replacements. The other use of the term, as found in IWX-3000, involves maintenance activities that do not involve repairs or replacements. With this clarification, PECO Energy proposes not to report corrective measures which only include routine maintenance activities such as tightening threaded fittings to eliminate leakage, torquing of fasteners to eliminate leakage at bolted connections, replacing valve packing due to unacceptable packing leakage, tightening loosened mechanical connections on supports, adjusting and realigning supports, cleaning up corrosion on components resulting from leakage, etc.

Including these routine maintenance activities in the Owner's Activity Report Form OAR-1 required by Code Case N-532 would be a significant expansion of current requirements. In addition, it would be an unnecessary reporting and review burden which provides little benefit. Reporting of these minor maintenance corrective measures has no safety significance and offers the reporting of meaningful information on repairs, replacements, and evaluations performed to accept flaws and relevant conditions exceeding Section XI acceptance criteria. Corrective measures that refer to Code required activities, such as repairs and replacements, will be reported in compliance with Code Case N-532.

PECO Energy considers the alternative documentation and reporting requirements of Code Case N-532 to be a reasonable alternative and an improvement to existing requirements. Because the use of this alternative only affects documentation and reporting requirements, PECO Energy considers this alternative to provide an acceptable level of quality and safety."

Evaluation: The licensee proposed to use Code Case N-532 in lieu of the reporting requirements of IWA-4000 and IWA-6000. Code Case N-532 has not been approved by the staff for general use by inclusion in the latest revision (Rev.12) of RG 1.147. The staff reviewed the documentation requirements of Code Case N-532 and determined that although the required forms have changed, the information required by the Code is available. Code Case N-532 would require preparation of the Repair/Replacement Certification Record, Form NIS-2A. The completed form NIS-2A shall be certified by an Authorized Nuclear Inservice Inspector (ANII) as defined in ASME Code, Section XI, IWA-2130, and shall be maintained by the Owner. Furthermore, the Owner's Activity Report Form, OAR-1, shall be prepared and certified by an ANII upon completion of each refueling outage. The OAR-1 form shall contain an abstract of applicable examinations and tests, a list of item(s) with flaws or relevant conditions that require evaluation to determine acceptability for continued service, and an abstract of repairs, replacements and corrective measures performed as a result of unacceptable flaws or relevant conditions. Hence, the information provided in the documentation pertaining to the use of Code Case N-532 can be used in the same manner to assess the safety implications of Code activities performed during an outage.

A review using the information as prescribed by the Code Case will, therefore, provide the same or improved level of quality and safety as reviews that may be conducted using the Code reporting requirements. In addition, more detailed information may be requested by the staff if it is deemed necessary. The use of this alternative should be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third interval at PBAPS Units 2 and 3. Use of this Code Case should be authorized until such time as the Code Case is published in a future revision of RG 1.147. At that time, if the licensee intends to continue to implement this Code Case, the licensee is to follow all provisions in the Code Case with limitations or conditions specified in RG 1.147, if any.

2.10 Request for Relief RR-32, Paragraph IWA-5250(a)(2), Corrective Measures for Leakage from Bolted Connections

Code Requirement: If leakage occurs at a bolted connection, Paragraph IWA-5250(a)(2) requires that the bolting be removed, VT-3 visual examined for corrosion, and evaluated in accordance with IWA-3100.

Licensee's Proposed Alternative: In lieu of the requirements of Paragraph IWA-5250(a)(2), the licensee proposed performing an evaluation in accordance with Code Case N-566-1 in the event of leakage from a bolted connection. The licensee stated:

"Leakage discovered at a bolted connection by visual VT-2 examination during system pressure tests will be evaluated to determine the susceptibility of the bolting to corrosion and potential future failure. The evaluation, including subsequent examinations when required, will, as a minimum, be performed in compliance with Code Case N-566-1, with an additional requirement that the evaluation consider the need for additional testing of the bolting and joint material to determine the susceptibility of the bolting to corrosion and failure.

The requirements of (a) or (b) below shall be met:

(a) The leakage shall be stopped, and the bolting and component material shall be evaluated for joint integrity as described in (c) below.

(b) If the leakage is not stopped, the joint shall be evaluated in accordance with IWB-3142.4 for joint integrity. This evaluation shall include the considerations listed in (c) below.

(c) The evaluation of (a) and (b) above is to determine the susceptibility of the bolting to corrosion and failure. This evaluation shall include the following:

- A. the number and service age of the bolts;
- B. bolt and component material;
- C. corrosiveness of process fluid;
- D. leakage location and system function;
- E. leakage history at the connection or other system components
- F. visual evidence of corrosion at the assembled connection
- G. consideration of need for follow-up examination, testing, and analysis of bolting materials to determine the susceptibility of the bolting to corrosion and failure;
- H. when evaluation of the above items indicates the need for further examination, the bolt closest to the source of leakage will be removed, receive a visual VT-1 examination, and be evaluated in accordance with IWA-3100(a)."

Licensee's Basis for Proposed Alternative:
"Pursuant to 10 CFR 50.55a(a)(3)(ii), relief is requested on the basis that compliance with Section XI requirements would result in hardship without a compensating increase in the levels of quality and safety.

Removal of bolting at a mechanical connection may not be the most prudent decision and may cause undue hardship without a compensating increase in the level of quality or safety. The environment at a leaking bolted connection is one of many variables to consider when evaluating leakage at a bolted connection. Other variables to be considered are: bolting materials, leaking medium, duration of the leak, and orientation of the leak (not all the bolts may be wetted). These variables are important to consider before disassembling a bolted connection for a visual VT-3 examination. PECO Energy proposes an alternative to the requirements of IWA-5250(a)(2) that will provide an equivalent level of quality and safety at Class 1, 2, and 3 bolted connections."

Evaluation:
The Code requires that all bolts be removed from leaking bolted connections and that the bolts be VT-3 visual examined for corrosion and evaluated in accordance with IWA-3100. The Code requirements provide assurance that bolting corroded by system leakage will be detected and that corrective actions will be taken. However, the Code requirements are often unnecessarily conservative since corrosion is dependent on other factors beyond system leakage. Additionally, removal and examination of all bolts may not be necessary to assure continued integrity of the bolted connection.

In lieu of these requirements, the licensee has proposed to implement Code Case N-566-1, which requires that an engineering evaluation be performed to determine the need for additional examinations of the bolts considering the seven criteria listed above. If the evaluation determines that examination is required, the licensee proposed that the bolt closest to the leak be removed and VT-1 examined and evaluated per IWA-3100. IWA-3100 requires evaluation of flaws in accordance with IWB-3000, IWC-3000, and IWD-3000 for Class 1, 2, and 3 pressure retaining components, respectively. The staff agrees that removal and VT-1 examination of the bolt closest to the leak is a reasonable alternative since degradation of this bolt is most likely, and would be representative of the worst case condition of the other bolts in the subject connection.

Based on the items included in the evaluation process, the INEEL staff believes that the evaluation proposed by the licensee presents a sound engineering approach. In addition, if the initial evaluation indicates the need for a more detailed analysis, the bolt closest to the source of leakage will be removed, VT-1 visually examined, and evaluated in accordance with IWA-3100(a). The VT-1 examination criteria are more stringent than the simple corrosion evaluation described in IWA-5250. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), it is recommended that the licensee's proposed alternative be authorized for the third interval at PBAPS Units 2 and 3. Use of this Code Case should be authorized until such time as the Code Case is published in a future revision of RG 1.147.

At that time, if the licensee intends to continue to implement this Code Case, the licensee is to follow all provisions in the Code Case with limitations or conditions specified in RG 1.147, if any.

2.11 Request for Relief RR-33, Use of Code Case N-598, *Alternative Requirements to Required Percentages of Examinations Section XI, Division 1*

Code Requirement:
Paragraphs IWB-2412, IWC-2412, and IWD-2412 and Tables IWB IWB-2412-1, IWC-2412-1, and IWD-2412-1 require that approximately one-third of the Code examinations be performed each inspection period and that 100 percent of the examinations be completed each inspection interval.

Licensee's Proposed Alternative:
Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee proposed using Code Case N-598*, Alternative Requirements to Required Percentages of Examinations Section XI Division 1,* to determine the required percentage of examinations each inspection period for Class 1, 2, and 3 components. The licensee stated:

> "Peach Bottom Atomic Power Station, Units 2 and 3, will use Code Case N-598 for the required percentages of examinations for all Class 1, 2, and 3 components and supports. Although Code Case N-598 also addresses Class MC components, containment issues are being addressed in Specification NE-291, and therefore are not being requested in this Request for Alternative."

Licensee's Basis for Proposed Alternative (as stated):
"Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety.

The ASME Code and Code Case N-491-1 tables referenced above were originally established such that approximately one third of the non-deferred examinations would be performed each period. Over the past 20 years, it has become increasingly more difficult to meet these percentages. The emergence of longer fuel cycles increases the likelihood that one of the periods will only have one refueling outage in it. In addition, efforts to shorten refueling outages have limited the amount of time available to perform examinations. These factors have made it difficult to complete the Code required percentages of examinations in the allotted time.

Code Case N-598 was developed to address this issue. It expands the range of examination completion percentages to allow examinations to be distributed more evenly between outages. This minimizes the need to schedule an excessive number of examinations during one outage just to meet the percentages required by ASME, Section XI, Tables IWB-2412-1, IWC-2412-1, IWD-2412-1, and Code Case N-491-1, Table -2410-2. In addition, Code Case N-598 allows for a more uniform distribution between outages that is more conducive to performing quality examinations.

During the development of Code Case N-598, two additional factors were considered when evaluating the impact of the Code Case on plant safety. The first was that the existing tables allow up to 50 percent of the examinations to be performed in the second and third periods, but only 34 percent can be performed in the first period. Therefore, the Inspection Plan B schedule is biased towards delaying examinations until the end of the interval. The more flexible percentages stated in Code Case N-598 allow for more examinations to be performed earlier in the interval. This should improve safety because any problems, should they exist, would be detected earlier in the interval.

The second factor that was considered when developing Code Case N-598 was that some minimum amount of examinations should be required in each period. To address this consideration, the Code Case, including Note (1), is structured such that examinations will be required during all three periods.

Due to the factors documented above, PECO Energy considers that the alternative criteria of Code Case N-598 provide an acceptable, or improved, level of quality and safety."

Evaluation:
Paragraphs IWB-2412, IWC-2412, and IWD-2412 and Tables IWB-2412-1, IWC-2412-1, and IWD-2412-1 require that approximately one-third of the Code examinations be performed each inspection period with 100 percent of the examinations completed by the end of the inspection interval. The licensee has proposed using Code Case N-598, *Alternative Requirements to Required Percentages of Examinations*, for Class 1, 2, and 3 components in lieu of the Code requirement to perform approximately one-third of the required interval examinations each inspection period. The licensee's request for alternative excludes the Class MC components within the scope of Code Case N-598. The minimum and maximum examination percentage requirements of Code Case N-598 for each period are as follows:

Inspection Period, Calender Years of Plant Service Within the Interval	Minimum Examinations Completed, percent	Maximum Examinations Completed, percent
3	16	50
7	50[1]	75
10	100	100

Note: (1) If the first period completion percentage for any examination category exceeds 34 percent, at least 16 percent of the required examinations shall be performed in the second period.

The Code Case and the Code both require the same minimum percentage of examinations be completed each inspection period, but the Code Case allows a greater maximum percentage of examinations in the first and second periods. This allows more examinations to be performed early in the interval.

The use of this Code Case will establish a new sequence of component examinations. The licensee will be required to repeat the newly established sequence of component examinations during successive inspection intervals. Because Code Case N-598 allows the licensee to perform examinations earlier in the interval, no more than approximately 10 years will be exceeded between component examinations. Consequently, the use of Code Case N-598 will provide an acceptable level of quality and safety. Therefore, it is recommended that the use of Code Case N-598 be authorized pursuant to 10 CFR 50.55a(a)(3)(i). Use of this Code Case should be authorized until such time as the Code Case is published in a future revision of RG 1.147. At that time, if the licensee intends to continue to implement this Code Case, the licensee is to follow all provisions in the Code Case with limitations or conditions specified in RG 1.147, if any.

3. CONCLUSION

The INEEL staff has reviewed the licensee's submittal and concludes that certain inservice examinations are impractical to perform as required by the Code. For Request for Relief Nos. RR-08, RR-24, and RR-28, it is recommended that relief be granted pursuant to 10 CFR 50.55a(g)(6)(i).

The INEEL staff concludes that for Request for Relief Nos. RR-23, RR-31, RR-32 and RR-33, the licensee's proposed alternative would provide an acceptable level of quality and safety. Therefore, it is recommended that these proposed alternatives be authorized pursuant to 10 CFR 50.55a(a)(3)(i). The INEEL staff also concludes for Request for Relief No. RR-25, that full compliance with the Code requirements would result in a hardship without a compensating increase in the level of quality or safety. Therefore, it is recommended that the proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

The INEEL staff concludes that Request for Relief Nos. RR-17 and RR-26 should not be authorized as the licensee has neither demonstrated that the proposed alternatives would provide an acceptable level of quality and safety, nor that compliance with the Code requirements would result in hardship without a compensating increase in the level of quality and safety.

In a letter response dated October 8, 1999, to an NRC RAI, the licensee withdrew Request for Relief No. RR-27.

Peach Bottom Atomic Power Station,
Units 2 and 3

cc:

J. W. Durham, Sr., Esquire
Sr. V.P. & General Counsel
PECO Energy Company
2301 Market Street, S26-1
Philadelphia, PA 19101

PECO Energy Company
ATTN: Mr. J. Doering, Vice President
Peach Bottom Atomic Power Station
1848 Lay Road
Delta, PA 17314

PECO Energy Company
ATTN: Regulatory Engineer, A4-5S
Peach Bottom Atomic Power Station
Chief Engineer
1848 Lay Road
Delta, PA 17314

Resident Inspector
U.S. Nuclear Regulatory Commission
Peach Bottom Atomic Power Station
P.O. Box 399
Delta, PA 17314

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Roland Fletcher
Department of Environment
Radiological Health Program
2400 Broening Highway
Baltimore, MD 21224

A. F. Kirby, III
External Operations - Nuclear
Delmarva Power & Light Company
P.O. Box 231
Wilmington, DE 19899

PECO Energy Company
Plant Manager
Peach Bottom Atomic Power Station
1848 Lay Road
Delta, PA 17314

Chief-Division of Nuclear Safety
PA Dept. of Environmental Resources
P.O. Box 8469
Harrisburg, PA 17105-8469

Board of Supervisors
Peach Bottom Township
R. D. #1
Delta, PA 17314

Public Service Commission of Maryland
Engineering Division
Chief Engineer
6 St. Paul Center
Baltimore, MD 21202-6806

Mr. Richard McLean
Power Plant and Environmental Review Division
Department of Natural Resources
B-3, Tawes State Office Building
Annapolis, MD 21401

Dr. Judith Johnsrud
National Energy Committee
Sierra Club
433 Orlando Avenue
State College, PA 16803

Manager-Financial Control & Co-Owner Affairs
Public Service Electric and Gas Company
P.O. Box 236
Hancocks Bridge, NJ 08038-0236

Manager-Peach Bottom Licensing
PECO Energy Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, PA 19087-0195