



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
OF THE SECOND TEN-YEAR INTERVAL INSERVICE INSPECTION RELIEF REQUESTS  
PHILADELPHIA ELECTRIC COMPANY  
PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3  
DOCKET NOS. 50-277 and 50-278

1.0 INTRODUCTION

Technical Specification 4.6.G for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, states that the inservice inspection and testing of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel 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). Pursuant to 10 CFR 50.55a(a)(3), alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulties 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 preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection 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 second ten-year interval 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) on the date 12 months prior to the start of the 120-month inspection interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the Peach Bottom Atomic Power Station, Units 2 and 3, second 10-year ISI interval is the 1980 Edition through the Winter 1981 Addenda. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein.

Pursuant to 10 CFR 50.55a(g)(5), if a licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME

Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

In a letter dated November 15, 1990, the licensee, Philadelphia Electric Company, submitted nine new and six revised relief requests as part of the latest revision to the "Peach Bottom Atomic Power Station, Unit 2 and 3, Inservice Inspection Program Second Interval," issued July 3, 1990. Review of "Augmented Inspection Program 5 (Aug-5): Snubber Examination and Test Program" in revised Appendix B of the ISI program is not included in this report.

As a result of a teleconference with the licensee on January 10, 1992, Relief Request RR-07 was withdrawn and six relief requests were revised and re-submitted by the licensee in letters dated March 19, 1992 and April 16, 1992. The staff, with technical assistance from its contractor, the Idaho National Engineering Laboratory (INEL), has evaluated the subject requests for relief in the following sections.

## 2.0 EVALUATION

The information provided by the licensee in support of the requests for relief from impractical requirements has been evaluated and the bases for granting relief from those requirements are documented below. Unless otherwise stated, reference to the Code refers to the ASME Code, Section XI, 1980 Edition, Winter 1981 Addenda (80WB1).

### A. Request for Relief No. RR-01, Examination Category B-A, Items B1.11 and B1.12, Reactor Pressure Vessel (RPV) Circumferential and Longitudinal Welds

NOTE: Relief Request RR-01 was previously submitted and was approved in an NRC Safety Evaluation Report (SER) dated April 8, 1986 as Relief Request 2.4.1 of the Second 10-Year Interval ISI Program. The Alternate provisions section of this relief request has been revised to include the examination of a portion of another circumferential/longitudinal weld in the beltline region in order to increase the effective examination coverage from 88% to the equivalent of 100% of the length of one weld. This revision does not change the evaluation of this relief request therefore, relief remains granted as requested.

### B. Request for Relief No. RR-02, Examination Category B-L-2, Item B12.20, Reactor Coolant Pump (RCP) Casings Internal Surfaces

NOTE: Relief Request RR-02 was previously submitted and was approved in an NRC SER dated April 8, 1986 as Relief Request 2.4.2.5 of the Second 10-Year Interval ISI Program. The Alternate Provisions section of this relief request has been revised to delete the proposed ultrasonic (UT) wall thickness surveillance program.

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-L-2, Item B12.20 requires a VT-3 visual examination of the internal surfaces of at least one RCP casing during the second inservice inspection interval.

Licensee's Code Relief Request: Relief is requested from performing the Code-required VT-3 visual examination of the reactor recirculation pump casing internal surfaces.

Licensee's Basis for Requesting Relief: The licensee feels that disassembly of either reactor recirculation pump for the sole purpose of visual inspection of the internal surfaces is impractical.

The disassembly of a reactor recirculation pump at PBAPS is a task of major proportions, consuming an estimated 10,000 plus man-hours and a cumulative radiation dose of between 100 and 500 man-rem.

Plant experience with the pump casing material in this application is favorable. The additional assurance of structural integrity afforded by visual examination is far outweighed by the cost and potential hazards of the inspection.

Licensee's Proposed Alternative Examination: A VT-3 visual examination will be performed on the internal surfaces of one reactor recirculation pump should the required inspection area of either pump become accessible as a result of disassembly of the pump for other purposes.

Staff Evaluation: The visual examination is performed to determine if unanticipated severe degradation of the casing is occurring due to phenomena such as erosion, corrosion, or cracking. However, experience with similar pumps at other plants has not shown any significant degradation of pump casings. Later editions and addenda of the ASME Code (1988 Addenda) have eliminated disassembly of pumps for the sole purpose of visual examination. Only pumps that are disassembled for reasons such as maintenance, repair, or volumetric examination are required to have their internal surfaces examined.

Philadelphia Electric Company has stated that the Code-required visual examination will be performed on the internal pressure boundary surface of one reactor recirculation pump if a pump is disassembled such that access for conducting the examination is provided.

Examination of internal surfaces of pumps necessitates complete disassembly of the pump which, in addition to the possibility of damage, would result in personnel receiving excessive radiation exposure. Therefore, the Code-required examination is impractical to perform at Peach Bottom, Units 2 and 3. Since no major problems have been reported in the industry with regard to pump casings, the licensee's proposal will provide adequate assurance of the continued inservice structural integrity. The potential increase in plant safety would not compensate for the burden caused by imposition of this Code requirement. Pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted provided that, if a pump has not been disassembled, that fact is reported by the licensee in the ISI Summary Report at the end of the interval.

C. Request for Relief No. RR-03, Examination Category B-M-2, Item B12.50, Class 1 Valve Bodies

NOTE: Relief Request RR-03 was previously submitted and was approved in an NRC SER dated April 8, 1986, as Relief Request 2.4.3 of the Second 10-Year Interval ISI Program. The Alternate Provisions section of this relief request has been revised to delete the proposed UT wall thickness surveillance program.

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-M-2, Item B12.50 requires a VT-3 visual examination, once each ISI interval, of the internal surfaces of one valve within each group of valves that are of the same design and manufacturing method and that perform similar functions in the system.

Licensee's Code Relief Request: Relief is requested from performing the Code-required VT-3 visual examination of valve body internal surfaces.

Licensee's Basis for Requesting Relief: The licensee states that the requirement to disassemble Class 1 valves solely for the purpose of performing a visual examination of the internal surfaces of the valve bodies is impractical. The hardships and potential hazards associated with disassembly far outweigh any foreseeable increase in plant safety resulting from the examination.

Many of the subject valves are non-isolatable from the reactor pressure vessel and disassembly would require off loading of fuel and draining the reactor pressure vessel. Personnel radiation exposure associated with disassembly of the valves is also a major consideration. In addition, industry experience with both cast and forged valve bodies in this application has been favorable.

Licensee's Proposed Alternative Examination: When a valve within a particular valve grouping is disassembled for routine maintenance, a VT-3 visual examination will be performed of the accessible internal surfaces of the valve body to meet the Code requirement for that grouping.

Staff Evaluation: The visual examination is performed to determine if unanticipated severe degradation of the valve body is occurring due to phenomena such as erosion, corrosion, or cracking. However, experience with similar valves at other plants has not shown any significant degradation of valve bodies. Later editions and addenda of the ASME Code (1988 Addenda) have eliminated disassembly of valves for the sole purpose of visual examination. Only valves that are disassembled for reasons such as maintenance, repair, or volumetric examination must have their internal surfaces examined.

Philadelphia Electric Company has stated that the Code-required visual examination will be performed if maintenance activities require disassembly of a valve such that access for conducting the examination is provided.

Examination of internal surfaces of a valve body necessitates complete disassembly of the valve which, in addition to the possibility of damage to the valve, could result in personnel receiving excessive radiation exposure. Disassembly is a major effort and requires many man-hours from skilled maintenance and inspection personnel. The potential increase in plant safety would not compensate for the burden placed on the licensee that would result from imposition of the requirement.

Since no major problems have been reported in the industry with regard to valve bodies, the licensee's proposal will provide adequate assurance of the continued inservice structural integrity. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted provided that, if a valve has not been disassembled, that fact is reported by the licensee in the ISI Summary Report at the end of the interval.

- D. Request for Relief No. RR-04 (Revision 1), Examination Category B-P, Item Nos. B15.11, B15.51, B15.61, and B15.71, Hydrostatic Test Pressures of Table IWB-5220-1.

NOTE: Relief Request RR-04 (Revision 1) was previously submitted and was approved in an NRC SER dated April 8, 1986 as Relief Request 2.4.4 of the Second 10-Year Interval ISI Program. The Alternate Provisions section of this relief request has been revised to more closely reflect the Plant Technical Specification wording regarding allowable reactor vessel pressures and temperatures. The technical content of this relief request does not change in Revision 1, therefore, the evaluation remains unchanged and relief is granted as requested.

E. Request for Relief No. RR-05 (Revision 1), Examination Category B-J, Item Nos. B9.11 and B9.12, Circumferential and Longitudinal Piping Welds

NOTE: Relief Request RR-05 (Revision 1) was previously submitted and was approved in an NRC SER dated April 8, 1986, as Relief Requests 2.4.6, 2.4.7, and 2.4.8 of the Second 10-Year Internal ISI Program. The scope/identification of welds applicable to this relief request has been revised. The total number of welds requiring relief has been reduced as a result of system modifications and pipe replacement activities that provided greater accessibility for examination. The Alternate Provisions section of this relief request was changed to require that an additional Code Category B-J weld be selected if examination of any selected circumferential weld is completely impractical (i.e., 0% examination complete).

The following list summarizes all of the welds that are applicable to this revised relief request:

UNIT #2

<u>EXAMINATION AREA IDENTIFICATION</u>	<u>CONFIGURATION</u>	<u>EXAMINATION % COMPLETE</u>
Main Steam Piping Welds		
1-B-7	Tee-Pipe	86
1-B-7LD	Longitudinal Seam	35
1-B-8	Pipe-Cap	70
1-B-8LU	Longitudinal Seam	0
1-D-9	Pipe-Elbow	50
1-D-9LU	Longitudinal Seam	0
1-D-12	Pipe-Valve	40
1-D-7LD	Longitudinal Seam	45
Residual Heat Removal Piping Welds		
10-1B-15LU	Longitudinal Seam	10
10-1A-15LU	Longitudinal Seam	10
10-0-35LD	Longitudinal Seam	66

UNIT #3

Main Steam Piping Welds		
1-A-7LD	Longitudinal Seam	50
1-B-7	Tee-Pipe	85
1-B-7LD	Longitudinal Seam	25

The technical content of this relief request does not change in Revision 1, therefore, the evaluation remains unchanged and relief is granted.

F. Request for Relief No. RR-06 (Revision 1), Examination Category B-K-1, Item No. B10.10, Integrally Welded Attachments for Piping and Pumps

NOTE: Relief Request RR-06 was approved in an NRC SER dated April 8, 1986 as Relief Requests 2.4.9, 2.4.10, and 2.4.11 of the Second 10-Year Interval ISI Program. The scope/identification of integral attachments applicable to this relief request has been revised. The total number of attachments requiring relief has been reduced as a result of system modifications and pipe replacement activities that provided greater accessibility for examination. The Alternate Provisions section has been revised to require examination of obstructed weld locations if the pipe clamp is removed for maintenance or other reasons.

The following list summarizes all of the integrally welded attachments that are applicable to this revised relief request:

UNIT #2

<u>EXAM AREA ID</u>	<u>EXAM % COMP.</u>	<u>EXAM AREA ID</u>	<u>EXAM % COMP.</u>
GA1 (IA)	0	H9A (IA)	80
GB1 (IA)	0	H9B (IA)	80
GC1 (IA)	0	6DD-H57 (IA)	80
GD1 (IA)	0	6DD-H58 (IA)	80
10DCN-H156 (IA)	80	12DCN-H152 (IA)	60
HA1 (IA)	80	12DCN-H149 (IA)	80
HB3 (IA)	80	14DCN-H74 (IA)	80
HC3 (IA)	80	14DCN-H77 (IA)	80
HD1 (IA)	80	14DCN-H73 (IA)	80
H1A (IA)	80	14DCN-H78 (IA)	80
H1B (IA)	80	23DBN-H51 (IA)	80

UNIT #3

<u>EXAM AREA ID</u>	<u>EXAM % COMP.</u>	<u>EXAM AREA ID</u>	<u>EXAM % COMP.</u>
GA1 (IA)	0	6DDNL-H26 (IA)	80
GB1 (IA)	0	6DD-H58 (IA)	80
GC1 (IA)	0	6DDNL-H6 (IA)	80
GD1 (IA)	0	6DDNL-H27 (IA)	80
23DBN-H52 (IA)	80	6DDNL-H28 (IA)	80
HA1 (IA)	80	6DD-H57 (IA)	80
HB3 (IA)	80	12DCN-H152 (IA)	60
HC3 (IA)	80	12DCN-H149 (IA)	80
HD1 (IA)	80	14DCN-H74 (IA)	80
6DDNL-H18 (IA)	80	14DCN-H77 (IA)	80
6DDNL-H44 (IA)	80	14DCN-H73 (IA)	80
6DDNL-H24 (IA)	80	14DCN-H78 (IA)	80
6DDNL-H25 (IA)	80		

Because the technical content of Revision 1 has not changed, relief remains granted provided that examination of the obstructed integral attachment welds is performed when the pipe clamps are removed for maintenance or other reasons.

G. Request for Relief No. RR-07, Examination Category C-F, Item C5.11, Circumferential Reducer-to-Valve Weld

In the March 19, 1992 submittal, the licensee withdrew Relief Request No. RR-07 as a result of questions raised by the staff during a teleconference.

H. Request for Relief No. RR-08, Examination Category C-A, Item C1.10, Residual Heat Removal (RHR) Heat Exchanger Circumferential Shell Welds

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-A, Item C1.10 requires a volumetric examination of the circumferential shell welds at gross structural discontinuities as defined by Figure IWC-2500-1.

Licensee's Code Relief Request: Relief is requested from performing 100% of the Code-required volumetric examination of shell-to-flange circumferential welds (10-2HXA-01, Units 2 and 3).

Licensee's Basis for Requesting Relief: The subject RHR Heat Exchanger shell-to-flange weld can only be examined from one side of the weld due to component configuration (i.e., the flange). In addition, access for a one-sided examination is limited due to weld crown configuration. Fifteen (15) percent of the required examination volume is inaccessible for examination due to the above conditions.

Partial examination of the subject weld coupled with complete examination of the remaining required shell weld on the heat exchanger provide adequate assessment of heat exchanger structural integrity.

Licensee's Proposed Alternative Examination: None. The licensee states that the subject welds will be examined to the maximum extent practical, and that all welds - including inaccessible weld locations - are subject to VT-2 visual examination during routine system pressure tests.

Staff Evaluation: The Code requires a 100% volumetric examination of the shell-to-flange weld on the RHR heat exchangers. The licensee states that 85% of the weld will receive the Code-required examination. The design of the RHR heat exchanger makes 100% of the Code-required volumetric examination impractical to perform at Peach Bottom, Units 2 and 3. Imposition of this Code requirement would require redesign and replacement of the existing RHR heat exchangers, and would create a burden without a compensating increase in the level of quality and safety. Partial examination of the subject weld (85%), coupled with

the complete examination of another Code-required RHR heat exchanger shell weld, provides reasonable assurance of the continued inservice structural integrity of this vessel. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested.

I. Request for Relief No. RR-09, Paragraph IWD-5223(a), Class 3 System Hydrostatic Testing

NOTE: Relief Request RR-09 was previously submitted and was approved in an NRC SER dated April 8, 1986, as Relief Request 4.4.1 of the Second 10-Year Internal ISI Program. No changes were made, therefore, relief remains granted.

J. Request for Relief No. RR-10, Examination Category F-C, Item F3.50, Class 1, 2, and 3 Snubbers

NOTE: Relief Request RR-10 was previously submitted and was approved in an NRC SER dated April 8, 1986 as Relief Request 5.3.1 of the Second 10-Year Interval ISI Program. The Alternate Provisions section of the new relief request has been revised to reference the specific Technical Specification sections that govern snubber operability and surveillance requirements. The licensee also included a description of their future plans regarding snubber inspections. Those plans include request for review and approval of a change to the Technical Specification snubber requirements and a request for review and approval of a new snubber inspection program, referred to by the licensee as Augmented Inspection Program-5 (AIP-5). Per a telephone conversation between the NRC staff and the licensee on November 4, 1992, the schedule for requesting those changes has not been determined by the licensee. The technical content of this relief request is not changed from Relief Request 5.3.1, therefore the evaluation remains unchanged and relief is granted.

K. Request for Relief No. RR-11, Paragraph IWC-1220, Components Exempt From Examination

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-F, requires 100% volumetric and/or surface examinations for Class 2 piping greater than 4 inch NPS.

Licensee's Code Relief Request: Relief is requested from the Code examination requirements of Table IWC-2500-1 for Class 2 piping and components beyond the last shutoff valve in open-ended portions of systems.

Licensee's Basis for Requesting Relief: The 1986 Edition of the Code recognizes the impracticality of examination of the subject piping and components. Per IWC-1221(f) and IWC-1222(d), "Piping and other components of any size beyond the last shutoff valve in open-ended

portions of systems that do not contain water during normal plant operating conditions" shall be exempted from the inservice examination requirements of IWC-2500.

Much of the subject piping is impractical to examine due to limited access as a result of plant design. Also, since this portion of the system does not contain water during normal operating conditions, the piping is seldom "pressure retaining" relative to operation.

Exemption of the subject piping and components, consistent with later Editions of the Code, does not preclude all examinations within the Code boundaries. Exempted piping and components are subject to the requirements of Code Examination Category C-H. Open flow path testing provides assurance of the availability of the piping to perform its intended function.

Licensee's Proposed Alternative Examination: None. ISI Class 2 piping and components of any size beyond the last shutoff valve in open-ended portions of systems that do not contain water during normal plant operating conditions shall be exempt from the examination requirements of IWC-2500.

Staff Evaluation: The Code requires 100% volumetric and/or surface examinations for Class 2 piping greater than 4-inch NPS. The staff determined that the Code requirements are impractical to perform due to limited access as a result of plant design. The systems would have to be redesigned in order to perform the code required examinations. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested.

L. Request for Relief No. RR-12, Paragraph IWD-1220, Items Exempt From Examination

Code Requirement: Section XI, Table IWD-2500-1 requires VT-2 visual examination of pressure retaining components and VT-3 visual examination of appropriate integral attachments and components supports.

Licensee's Code Relief Request: Relief is requested to exempt that portion of Class 3 piping and components beyond the last shutoff valve in open-ended portions of systems.

Licensee's Basis for Requesting Relief: The 1986 Edition of the Code allows for the exemption of Class 2 piping and components beyond the last shutoff valve in open-ended portions of systems. The licensee feels that since Class 3 requirements need not be more restrictive than Class 2 requirements, it follows that this exemption may be applied to Class 3 components.

Much of the subject piping is impractical to examine due to limited access as a result of plant design. Also, since these portions of the system do not contain water during normal operating conditions, the piping is seldom "pressure retaining" relative to operation.

Exemption of the subject piping and components, consistent with later editions of the Code, does not preclude all examinations within the Code boundaries. Exempted piping and components are subject to the system pressure test requirements of Table IWD-2500-1. Open flow path testing provides assurance of the availability of the system to perform its intended function.

Licensee's Proposed Alternative Examination: None. Class 3 piping and components of any size beyond the last shutoff valve in open-ended portions of systems that do not contain water during normal plant operating conditions shall be exempt from the examination requirements of IWD-2500-1.

Staff Evaluation: Table IWD-2500-1 only requires VT-2 or VT-3 visual examinations of Class 3 components or integral attachments, respectively. The licensee has not demonstrated impracticality or proposed an alternative that would provide an acceptable level of quality and safety as a basis on which to grant relief. A relief request is not a vehicle for changing the Code. Editions subsequent to 80W81 do not allow for the exemption being sought. It is the conclusion of the staff that justification for the granting of relief does not exist in this case, therefore, relief is denied.

M. Request for Relief No. RR-13 (Revision 1), Examination Category B-D, Item B3.90, RPV Nozzle-to-Vessel Welds

Code Requirement: Section XI, Table IWB-2500-1, Examination Category B-D, Item B3.90 requires a 100% volumetric examination of the RPV nozzle-to-vessel welds as defined by Figure IWB-2500-7(a).

Licensee's Code Relief Request: Relief is requested from performing a 100% examination of the Code-required volume of the following reactor pressure nozzle-to-vessel welds:

Unit #2

NOZZLE IDENTIFICATION

N1A - Recirc. Outlet  
N2A - Recirc. Inlet  
N2B - Recirc. Inlet  
N2C - Recirc. Inlet

NOZZLE IDENTIFICATION

N3A - Main Steam  
N3D - Main Steam  
N4 - Feedwater (6 nozzles)  
N5A - Core Spray

N2D - Recirc. Inlet  
N2E - Recirc. Inlet  
N2F - Recirc. Inlet  
N2H - Recirc. Inlet

N5B - Core Spray  
N8A - Jet Pump Instr.  
N9 - Control Rod Drive

Unit #3

NOZZLE IDENTIFICATION

N1A - Recirc. Outlet  
N2A - Recirc. Inlet  
N2B - Recirc. Inlet  
N2C - Recirc. Inlet  
N2D - Recirc. Inlet  
N2E - Recirc. Inlet  
N2F - Recirc. Inlet  
N2H - Recirc. Inlet

NOZZLE IDENTIFICATION

N3A - Main Steam  
N3D - Main Steam  
N4 - Feedwater (6 nozzles)  
N5A - Core Spray  
N5B - Core Spray  
N8A - Jet Pump Instr.  
N9 - Control Rod Drive

NOTE: See March 19, 1992 submittal for actual % Code volume completed.

Licensee's Basis for Requesting Relief: Each unit at Peach Bottom has thirty (30) Code Category B-D nozzle-to-vessel attachment welds, many of which cannot be completely examined due to vessel nozzle forging configuration. The barrel-type nozzle forging configuration precludes complete ultrasonic examination since scanning of the weld is only possible from one side of the weld. Also, in support of ALARA, many of the nozzle-to-vessel welds are to be examined using a remote automated nozzle scanner; thereby, slightly exaggerating the limitations, versus a manual examination, due to scanner design.

In addition to the nozzle forging configuration, physical plant design restrictions, such as adjacent components, further limit the available scan path.

All examinations are performed to the maximum extent practical. In the case of examinations performed with remote automatic equipment, only a slight increase in examination coverage (~5%) can be realized with supplemental manual exams; however, this small increase comes with a significant increase in personnel exposure, and therefore, a manual examination was not performed.

Licensee's Proposed Alternative Examination: None. The licensee states that the limited volumetric examination, coupled with the visual examination requirements of Code Examination Category B-P during system pressure testing, provide reasonable assessment of weld structural integrity.

Staff Evaluation: The Code requires that the RPV nozzle-to-vessel welds receive a 100% volumetric examination. The subject nozzles are of the barrel-type design. This design limits examination to one side of the weld, and thus, limits the extent of ultrasonic coverage. The Code-

required examination volume is, therefore impractical. Imposition of this Code requirement on the licensee would cause a burden that would not be compensated significantly by an increase in safety above that provided by the limited examination.

The licensee has stated that the volumetric examination of these welds will be performed to the maximum extent practical. The percentages of the Code-required volume that can and will be complete appears low compared with other "sister" plants. The licensee has reported that this is due to the barrel-type design of the Peach Bottom, Units 2 and 3, reactor vessel nozzles. Philadelphia Electric Company should continue to pursue state-of-the-art examination techniques, including examinations from the vessel inside diameter, that will increase examination coverage.

It is concluded that the volumetric examinations of the subject RPV nozzle-to-vessel welds are impractical to perform at Peach Bottom, Units 2 and 3 to the extent required by the Code and that public health and safety will not be endangered by allowing the limited Section XI examination to be performed in lieu of the Code requirement. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested.

N. Request for Relief No. RR-14 (Revision 1), Code Case N-479, BWR Main Steam Hydrostatic Test

Code Requirement: Section XI, IWC-5222 requires that the system hydrostatic test pressure be at least 1.10 times the system pressure for systems with design temperature of 200°F or less, and at least 1.25 times the system pressure for systems with design temperature above 200°F.

Licensee's Code Relief Request: The licensee requests authorization to adapt ASME Code Case N-479, "Boiling Water Reactor (BWR) Main Steam System Hydrostatic Test," for implementation in the Peach Bottom, Units 2 and 3, ISI program.

Licensee's Basis for Requesting Relief: ASME Code Case N-479 permits hydrostatic testing of Class 2 portions of the main steam system in BWRs at the Class 1 hydrostatic test pressure when the boundary valve between the Class 2 portion and the Class 1 portion is not capable of isolating one system from the other. Use of this Code Case allows testing to the alternative rules of IWB-5222, which is most practical in this situation.

Licensee's Proposed Alternative Examination: The licensee requests authorization to use ASME Code Case N-479 in the Peach Bottom, Units 2 and 3, Second 10-Year Interval ISI Program.

Staff Evaluation: ASME Code Case N-479 permits the hydrostatic test pressure for the Class 2 portion of the main steam system to meet the requirements of IWA-5000 and IWB-5222. This Code Case was approved by the ASME Code Committee on July 24, 1989. The NRC has approved this Code

Case in Revision 9 of Regulatory Guide 1.147; therefore, relief is not required.

0. Request for Relief No. RR-15 (Revision 1), Examination Category C-C, Item C3.30, Integrally Welded Attachments For Pumps

Code Requirement: Section XI, Table IWC-2500-1, Examination Category C-C, Item C3.30 requires a 100% surface examination of the required areas of each welded attachment as defined by Figure IWC-2500-5. The examination is limited to attachments of those components required to be examined under Examination Category C-G (i.e., only one pump among each group of multiple pumps).

Licensee's Code Relief Request: Relief is requested from performing a complete Code-required surface examination of the welded attachments on each of the four RHR pumps in each unit that are required for examination during the second interval. Twenty percent of the Code-required examination will be completed on pump numbers PUMP-B-IWS (Unit 2) and PUMP-A-IWS (Unit 3).

Licensee's Basis for Requesting Relief: The licensee states that each of the four RHR pumps have a base plate integrally welded to the pump casing, along with four radially oriented reinforcing ribs, also welded to the pump casing. The base plate-to-pump casing weld is totally inaccessible, since it is under the base plate. Additionally, the reinforcing rib-to-pump casing weld on three of the four ribs is also inaccessible due to pump support reinforcing plates which cover the rib.

Licensee's Proposed Alternative Examination: None. The Code-required surface examination of these welds are performed to the maximum extent practical.

Staff Evaluation: The Code requires surface examination of integral attachment welds. As a result of a plant modification, three of the four reinforcing rib attachment welds are inaccessible for surface examination. As a result of the January 10, 1992 teleconference with the licensee, a sketch depicting the as-built condition of the subject integrally welded attachments was provided in the March 19, 1992 submittal. The sketch shows that a complete Code-required examination is impractical to perform at Peach Bottom, Units 2 and 3. In order to examine the welds in accordance with the requirements, the pump's integral attachment welds, and thus the RHR pumps, would require redesign. Imposition of this Code requirement on the licensee would cause a burden that would not be compensated significantly by an increase in safety above that provided by the limited examination.

The licensee has stated that the surface examination will be performed to the maximum extent practical. Therefore, based on the impracticality of performing the surface examination to the extent required by the Code,

and the burden on the licensee if the Code requirement is imposed, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i).

P. Request for Relief No. RR-16, Hydrostatic Test of RHR Heat Exchangers, Test Boundary Piping, and Valves

Code Requirement: Section XI, Paragraph IWC-5210(a)(2) requires that the pressure retaining components within each system boundary be subjected to a system hydrostatic pressure test [IWA-5211(d)] for each system or portions of systems and visually examined by the method specified in Table IWC-2500-1, Examination Category C-H.

Paragraph IWC-5222(a) requires that the Class 2 system hydrostatic test pressure be at least 1.10 times the system pressure for systems with design temperature of 200°F or less, and at least 1.25 times the system pressure for systems with design temperature above 200°F. The system pressure shall be the lowest pressure setting among the number of safety or relief valves provided for overpressure protection within the boundary of the system to be tested. For systems (or portions of systems) not provided with safety or relief valves, the system design pressure shall be substituted for the system pressure.

Licensee's Code Relief Request: Relief is requested from performing the Code-required hydrostatic pressure test for RHR Heat Exchangers HX 2AE24-2DE24 and HX 3AE24-3DE24 and associated test boundary piping and valves.

Licensee's Basis for Requesting Relief: The licensee states that the Code-required hydrostatic test pressure for the RHR heat exchangers is 562.5 psig (1.25 x 450 psig). However, plant operating procedures limit operation of the RHR system (shell side) to a pressure less than the high pressure service water (HPSW) system pressure (tube side) to preclude possible in-leakage of contaminated water into "clean" HPSW cooling water. The HPSW pumps are the limiting factor in that, even at dead head conditions, insufficient pressure is available to support Code-required hydrostatic test pressures. Therefore, relief is requested from the system hydrostatic test pressure requirements of IWC-5222(a) to allow testing at a reduced pressure.

Licensee's Proposed Alternative Examination: The RHR heat exchanger and associated test boundary piping and valves will be tested at 1.25 times the normal operating pressure. (Normal operating pressure for this test is RHR pump discharge pressure @ 11,000 gpm flow, nominally 230 psig ± 10).

Staff Evaluation: The Code requires that the Class 2 RHR system receive a hydrostatic pressure test at 1.25 times the system design pressure. Plant operating procedures limit operation of the RHR system (shell side) to a pressure less than HPSW (tube side) pressure. The HPSW pumps supply insufficient pressure to support required test pressure for the tube side

to be greater than shell side pressure. The Code-required hydrostatic test pressure is therefore impractical to attain. The licensee proposes to perform the pressure tests at 1.25 times the normal operating pressure of 230 psig  $\pm$  10. This test pressure will provide reasonable assurance of continued inservice structural integrity of the RHR system. Imposition of the Code requirement on Philadelphia Electric Company would necessitate redesigning the system or replacing the HPSW pumps. It would create a burden on the licensee that would not be compensated for by an increase in quality or safety above that attained by the proposed alternative examination. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested.

Q. Request for Relief No. RR-17, IWD-5223(f), Pneumatic Testing of Class 3 Main Steam Relief Valve Discharge Lines

Code Requirement: Section XI, Paragraph IWD-5223(f) requires a pneumatic test (at 90% of the pipe submergence head of water) that demonstrates the system leakage integrity be performed in lieu of the system hydrostatic test for safety or relief valve piping that discharges into the containment pressure suppression pool.

Licensee's Code Relief Request: Relief is requested from performing the Code-required system pressure tests of the Class 3 main steam relief valve discharge lines.

Licensee's Basis for Requesting Relief: The licensee states that the IWD-5223(f) requirement translates into a pneumatic test pressure of about 2 psig. Currently, no test connections exist to facilitate performance of the pneumatic test; plant modification would be required to add the necessary test connections. The assurance of leakage integrity afforded through performance of a 2 psig pneumatic test is questionable; therefore, performance of the test at Peach Bottom, Units 2 and 3, represents a hardship with no compensating increase in plant safety.

Licensee's Proposed Alternative Examination: None. The licensee states that instrumentation (acoustic, temperature) on these lines provides indirect information relative to the integrity of these lines. This instrumentation is routinely monitored when the main steam relief valves (MSRV) are lifted.

Staff Evaluation: A hydrostatic pressure test of the Class 3 main steam relief valve discharge lines is recognized as impractical because this line is open ended into the containment pressure suppression pool. The Code requires an alternate pneumatic test at 90% of the pipe submergence head pressure. At Peach Bottom, Units 2 and 3, 90% of the pipe submergence head pressure is about 2 psig. Imposition of the Code-required pneumatic test would require plant modification to add the necessary test connections. The increase in the level of quality and safety would not compensate for the hardship upon the licensee if

compliance were imposed. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted as requested.

### 3.0 CONCLUSION

Paragraph 10 CFR 50.55a(g)(4) requires that components (including supports) that are classified as ASME Code Class 1, 2, and 3 meet the requirements, except design and access provisions and preservice requirements, set forth in applicable editions of ASME Section XI to the extent practical within the limitations of design, geometry, and materials of construction of the components. Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee determined that conformance with certain Code requirements is impractical for its facility and submitted supporting technical justification.

Pursuant to 10 CFR 50.55a(g)(6)(i), the staff has determined that certain requirements of the Code are impractical for Peach Bottom, Units 2 and 3, and relief may be granted for the issues described in Requests for Relief Nos. RR-02, RR-03, RR-08, RR-11, RR-13, RR-15, RR-16, and RR-17 with the conditions stated in Section 2. Relief remains granted for issues described in Requests for Relief Nos. RR-01, RR-04, RR-05, RR-06, RR-09, and RR-10. The staff determined that request for Relief No. RR-14 was not required. The reliefs granted are authorized by law, will not endanger life, property, or the common defense and security, and is otherwise in the public interest. This relief is being granted giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Request for Relief No. RR-07 was withdrawn based on a January 10, 1992 teleconference. Request for Relief No. RR-12 is denied.

Principal Contributor: T. McLellan

Date: December 23, 1992