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April 21, 1988

Docket Nos. 50-277
50-278

Dr. Thomas E. Murley
Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

Subject: Peach Bottom Atomic Power Station Units 2 and 3
Request for Exemption from Certain Requirements
of Appendix J to 10 CFR 50

Reference: Letter from S. L. Daltroff (PECo) to
J. F. Stolz (NRC) dated May 15, 1981

Dear Dr. Murley:

On May 15, 1981, Philadelphia Electric Company filed with the Commission, in accordance with 10 CFR 50.12 of the Commission's regulations, a request for exemption from certain requirements of Appendix J of 10 CFR 50. On August 19, 1987, the NRC's Project Manager for Peach Bottom requested Licensee to resubmit its exemption request in a revised format to address each of the exemption criteria stated in an amendment to 10 CFR 50.12 which was adopted subsequent to the filing of the Company's exemption request.

In a letter dated January 22, 1988, the Company advised the NRC that it intended to file the requested revised exemption request by February 29, 1988. In a subsequent telephone conversation on March 2, 1988, this filing date was extended.

Accordingly, there are transmitted herewith, Attachments A through E to this letter, Philadelphia Electric Company's requests for exemption from certain requirements of 10 CFR 50, Appendix J. The specific requirements for which exemption are sought in each of the attachments are as follows:

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1. Attachment A restates the Company's request for exemption from Paragraphs II.H.4, III.C.2 and III.C.3 of Appendix J with regards to local leak rate testing of the Main Steam Isolation Valves (MSIVs) and provides the bases for such exemption in accordance with 10 CFR 50.12(a), as amended.
2. Attachment B restates the Company's request for exemption from Paragraphs II.H.1 and III.C with regards to local leak rate testing of containment isolation valves on the Transverse In-core Probe (TIP) System and provides the bases for such exemption in accordance with 10 CFR 50.12(a), as amended.
3. Attachment C restates the Company's request for exemption from Paragraphs II.H.4 and III.C with regards to local leak rate testing of Torus containment isolation valves that are on lines that terminate below the minimum suppression pool water level and provides the bases for such exemption in accordance with 10 CFR 50.12(a), as amended.
4. Attachment D restates the Company's request for exemption from Paragraph III.C.1 with regards to the local leak rate testing of particular inboard containment isolation valves in the reverse direction and provides the bases for such exemption in accordance with 10 CFR 50.12(a), as amended.
5. Attachment E restates the Company's request for exemption from Paragraphs II.H.4 and III.C with regards to the local leak rate testing of individual isolation valves in the Control Rod Drive (CRD) insert and withdrawal lines which connect to the CRD hydraulic units and provides the bases for such exemption in accordance with 10 CFR 50.12(a), as amended.

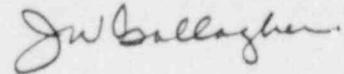
Licensee also plans to request an exemption with regards to reverse flow testing the manual inboard containment isolation valve for penetration N-102B (Breathing Air System). If vendor documentation to support the exemption is available, a revised exemption request on this subject which conforms to the present requirements of 10 CFR 50.12(a) will be submitted to the NRC. We expect to make this submittal by June 24, 1988.

Dr. Thomas E. Murley, Director

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If you have any questions, please do not hesitate to contact us.

Very truly yours,



cc: Addressee
W. T. Russell, Administrator, Region I, USNRC
T. P. Johnson, USNRC Senior Resident Inspector
T. E. Magette, State of Maryland

Request for Exemption from the Requirements of Paragraphs
II.H.4, III.C.2 and III.C.3 of 10 CFR 50, Appendix J

Exemption Requested:

Philadelphia Electric Company requests an exemption from the requirements of 10 CFR 50, Appendix J, Paragraphs II.H.4, III.C.2 and III.C.3. Paragraphs II.H.4 and III.C.2 require leak rate testing of the Main Steam Isolation Valves (MSIV's) at the peak calculated containment pressure related to the design basis accident. Paragraph III.C.3 requires that the measured leak rates be included in the summation of the local leak rate test (LLRT) results. An exemption is requested to allow leak testing of the MSIV's (identified below) at reduced pressure. An exemption is also requested to exclude the measured leakage from the combined LLRT results.

Justification for Requested Exemption:

The requested exemption may be granted by the NRC under 10 CFR 50.12(a) provided that the exemption is: I) authorized by law; II) will not present an undue risk to the public health and safety; III) is consistent with the common defense and security; and IV) justified by the presence of special circumstances of the type identified in Section 50.12(a)(2).

I. The Requested Exemptions and the Activities Which Would Be Allowed Thereunder Are Authorized by Law

If the criteria established in 10 CFR 50.12(a) are satisfied, and if no other prohibition of law exists to preclude the activities which would be authorized by the requested exemption, the Commission is authorized by law to grant the exemption request. Since, as demonstrated herein, the requested exemption meets the applicable criteria and there is no legal prohibition to its grant, the Commission is authorized by law to grant the exemption.

II. The Requested Exemption will not Present an Undue Risk to the Public Health and Safety

For the reasons stated in Section IV, Special Circumstances, the proposed local leak rate testing of the MSIV's, in lieu of the specified Appendix J requirements, does not present undue risk to the public health and safety because the proposed alternative testing will equally determine the condition of the MSIV's and their ability to maintain containment isolation integrity during an accident.

III. The Requested Exemption is Consistent with the Common Defense and Security

The common defense and security are not endangered by this exemption request. Only the potential impact on public health and safety is at issue and has been determined to be inconsequential.

IV. Special Circumstances

Two special circumstances of the type described in 10 CFR 50.12(a)(2) are present in the request under consideration in that: (a) the application of the regulation is not necessary to achieve the underlying purpose of the rule, and; (b) compliance would result in undue hardship.

The purpose of 10 CFR 50, Appendix J is to provide appropriate containment leakage test requirements for nuclear power reactors. The underlying purpose is to demonstrate by periodic testing that the primary reactor containment will be able to perform its function of providing a leak tight barrier against the uncontrolled release of radioactivity to the environment. The alternative measures proposed in the discussion below, in lieu of the applicable Appendix J, Type C test, will meet the underlying purpose of the regulation.

10 CFR 50, Appendix J, Paragraphs II.H.4 and III.C.2 require leak rate testing of the MSIV's at the peak calculated containment pressure related to the design basis accident. Paragraph III.C.3 requires that the measured leak rates be included in the summation of the LLRT test results. An exemption is requested to allow leak testing of the MSIV's at reduced pressure and to exclude the measured leakage from the combined LLRT results. The MSIV's (globe type) for Units 2 and 3 are as follows:

<u>Pene. #</u> <u>(N-)</u>	<u>Inboard Valve #</u>	<u>Outboard Valve #</u>
7A	AO-80A	AO-86A
7B	AO-80B	AO-86B
7C	AO-80C	AO-86C
7D	AO-80D	AO-86D

Each main steam line is provided with two MSIV's that are angled in the main steam line in order to afford better sealing in the direction of accident pressure. The orientation of the inboard MSIV is such that testing the valve in the reverse direction tends to unseat the valve.

Testing of the inboard MSIV's in the forward direction when the reactor vessel head is removed requires the installation of plugs at the inside steam line nozzle penetrations.

Experience has shown that these plugs will not hold pressure when subjected to the 25 psig LLRP pressure. In addition, the test volume created includes the Main Steam Relief Valves, High Pressure Coolant Injection, Main Steam Sample, Reactor Head Vent, Main Steam Line Drain and Reactor Core Isolation Cooling piping which increase the number of potential leak paths. Therefore, this method of testing would not accurately measure the leak tightness of the MSIV's and thus would not serve the underlying purpose of the rule.

A second alternative would be to install a 26 inch block valve and a one inch test tap in each of the four main steam lines in order to Type C test the inboard MSIV in the forward direction. This modification would require significant monetary expenditures to implement without a commensurate increase in safety levels. This design would also require the local leak rate test to be conducted inside the drywell as opposed to the outboard MSIV room, thus, subjecting those performing the test to higher radiation dose rates. Therefore, these modifications would result in undue hardship due to the costs incurred without a commensurate increase in safety levels and the hardships incurred as a result of the increased radiation exposure to plant personnel. Additionally, application of these modifications would not be necessary to serve the underlying purpose of the rule which is to ensure that the primary containment serves as an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

Testing of the two valves simultaneously at peak containment pressure, by pressurizing between the valves, would lift the disc of the inboard valve. This would result in a test which does not accurately reflect the isolation capabilities of the valves. The proposed test calls for pressurizing between the MSIV's at nominally one-half of the peak containment pressure (25 psig) to avoid lifting the disc of the inboard valve. The total observed leakage through both valves would then be conservatively assigned to the penetration.

The measured leakage rate for any one main steam line through the isolation valves shall be limited to a maximum pathway leakage value of 11.5 scfh in accordance with PBAPS Technical Specifications. The 11.5 scfh acceptance criteria is effective and reliable in determining the status of the MSIV's and in verifying that substantial degradation of these valves has not occurred since the last Integrated Leakage Rate Test (ILRT). Years of experience in testing these valves at many Boiling Water Reactor units at a pressure of 25 psig and with an acceptance criteria of 11.5 scfh has been shown to be effective and reliable in determining the condition of these valves between ILRT's. Additionally, the leakage path through the MSIV's is included during an ILRT and therefore, the effect of this leakage on containment integrity is taken into account. For these reasons, the

leakage through the MSIV's should be excluded from the limit of 0.6 La for the combined leakage rate for penetrations and valves subject to local leak rate tests.

Exemption from paragraphs II.H.4, III.C.2, and III.C.3 of Appendix J is consistent with the present PBAPS Technical Specifications 4.7.A.2.F, Table 3.7.4 and the Standard Technical Specification NUREG-0123, Section 3.6.1.2 (page 3/4 6-2). Further, the exemption is consistent with current regulatory practice and policy, as evidenced by the granting of a similar exemption for Limerick Generating Station documented in Safety Evaluation Report (SER) Section 6.2.6.1 (NUREG-0991, August 1983).

Based on the above discussion, there is no increase in the probability of higher post accident offsite or onsite doses related to the exemption and therefore no increase in environmental impact beyond that experienced with no exemption.

The alternative measures proposed in the discussion above, will provide assurance that the primary reactor containment is an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

Request for Exemption from the Requirements of Paragraphs
II.H.1 and III.C of 10 CFR 50, Appendix J

Exemption Requested:

Philadelphia Electric Company requests an exemption from the requirements of 10 CFR 50 Appendix J, Paragraphs II.H.1 and III.C. Paragraphs II.H.1 and III.C require local leak rate testing of containment isolation valves on the Transverse Incore Probe (TIP) System. An exemption is requested from the requirement to local leak rate test the TIP shear valves.

Justification for Requested Exemption:

The requested exemption may be granted by the NRC under 10 CFR 50.12(a) provided that the exemption is: I) authorized by law; II) will not present an undue risk to the public health and safety; III) is consistent with the common defense and security; and IV) justified by the presence of special circumstances of the type identified in Section 50.12(a)(2).

I. The Requested Exemptions and the Activities Which Would Be Allowed Thereunder Are Authorized by Law

If the criteria established in 10 CFR 50.12(a) are satisfied, and if no other prohibition of law exists to preclude the activities which would be authorized by the requested exemption, the Commission is authorized by law to grant the exemption request. Since, as demonstrated herein, the requested exemption meets the applicable criteria and there is no legal prohibition to its grant, the Commission is authorized by law to grant the exemption.

II. The Requested Exemptions Will Not Present an Undue Risk to the Public Health and Safety

For the reasons stated in Section IV, Special Circumstances, the requested exemption from local leak rate testing the TIP shear valves does not present undue risk to the public health and safety because the proposed surveillance provisions, in lieu of the specified Appendix J requirements, will equally determine the condition of the TIP shear valves and ensure that containment isolation integrity is maintained.

III. The Requested Exemption is Consistent with the Common Defense and Security

The common defense and security are not endangered by this exemption request. Only the potential impact on public health and safety is at issue and has been determined to be inconsequential.

IV. Special Circumstances

Two special circumstances of the type described in 10 CFR 50.12(a)(2) are present in the request under consideration in that: (a) the application of the regulation is not necessary to achieve the underlying purpose of the rule, and; (b) compliance would result in undue hardship.

The purpose of 10 CFR 50, Appendix J is to provide appropriate containment leakage test requirements for nuclear power reactors. The underlying purpose is to demonstrate by periodic testing that the primary reactor containment will be able to perform its function of providing a leak tight barrier against the uncontrolled release of radioactivity to the environment. The alternative measures proposed in the discussion below, in lieu of the applicable Appendix J, Type C test, will meet the underlying purpose of the regulation.

10 CFR 50, Appendix J, Paragraphs II.H.1 and III.C require local leak rate testing of containment isolation valves on the TIP system. An exemption is requested from the requirement to local leak rate test the TIP shear valves.

Each of the 5 TIP guide tubes is equipped with a ball valve which provides isolation following cable withdrawal. A shear valve is also provided on each guide tube to cut the cable and isolate the tube in the event that isolation is required and the drive cable can not be withdrawn.

The TIP ball valves are subject to the local leak rate testing in accordance with 10 CFR 50, Appendix J. It is impractical to leak rate test the shear valves since their destruction would be required. The constant destruction and replacement of the shear valves would result in undue hardship due to the replacement costs involved and would not provide a periodic test of the valves to measure leak tightness. These actions would not serve the underlying purpose of the rule. In lieu of leak rate testing and ultimate destruction of the shear valves, the following surveillance provisions for the TIP shear valves are performed:

- Verification of the continuity of the explosive charge is monitored by an alarm in the Control Room.
- Initiation of one explosive squib charge at least once per operating cycle. The replacement charge for the explosive valve shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of that batch successfully fired.
- Replacement of all explosive charges in accordance with the manufacturer's recommended lifetime.

Isolation provisions for the TIP guide tubes are described in detail in PBAPS UFSAR Section 5.2.3.5. In response to NUREG-0737 Item II.E.4.2, the containment isolation provisions for the TIPs were analyzed in detail for Boiling Water Reactor plants by General Electric in NEDC-22253, entitled "BWR Owner's Group Evaluation of Containment Isolation Concerns", dated October 1982. The report concludes that the likelihood of a fission product release to the environment through the TIP guide tubes with no isolation is quite low and the radiological consequences of such a release are minimal.

The alternative testing provisions proposed in the discussion above, will provide assurance that the primary reactor containment is an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment in lieu of the Appendix J requirements. This alternate method of testing has also been approved for other operating Boiling Water Reactors (Limerick Generating Station).

Request for Exemption from the Requirements of Paragraphs
II.H.4 and III.C of 10 CFR 50, Appendix J

Exemption Requested:

Philadelphia Electric Company requests an exemption from the requirements of 10 CFR 50, Appendix J, Paragraphs II.H.4 and III.C. Paragraphs II.H.4 and III.C require leak rate testing of all Torus piping penetrations. An exemption from Type C testing is requested for Torus containment isolation valves that are on lines that terminate below the minimum suppression pool water level.

Justification for Requested Exemption:

The requested exemption may be granted by the NRC under 10 CFR 50.12(a) provided that the exemption is: I) authorized by law; II) will not present an undue risk to the public health and safety; III) is consistent with the common defense and security; and IV) justified by the presence of special circumstances of the type identified in Section 50.12(a)(2).

I. The Requested Exemptions and the Activities Which Would Be Allowed Thereunder Are Authorized by Law

If the criteria established in 10 CFR 50.12(a) are satisfied, and if no other prohibition of law exists to preclude the activities which would be authorized by the requested exemption, then the Commission is authorized by law to grant the exemption request. Since, as demonstrated herein, the requested exemption meets the applicable criteria and there is no legal prohibition to its grant, the Commission is authorized by law to grant the exemption.

II. The Requested Exemption Will Not Present an Undue Risk to the Public Health and Safety

For the reasons stated in Section IV, Special Circumstances, the requested exemption from local leak rate testing the water covered Torus isolation valves does not present undue risk to the public health and safety because assurances exist that provide adequate determination of the condition of the isolation valves and their ability to maintain containment isolation integrity.

III. The Requested Exemption is Consistent with the Common Defense and Security

The common defense and security are not endangered by this exemption request. Only the potential impact on public health and safety is at issue and has been determined to be inconsequential.

IV. Special Circumstances

Two special circumstances of the type described in 10 CFR 50.12(a)(2) are present in the request under consideration in that: (a) the application of the regulation is not necessary to achieve the underlying purpose of the rule, and; (b) compliance would result in undue hardship.

The purpose of 10 CFR 50, Appendix J is to provide appropriate containment leakage test requirements for nuclear power reactors. The underlying purpose is to demonstrate by periodic testing that the primary reactor containment will be able to perform its function of providing a leak tight barrier against the uncontrolled release of radioactivity to the environment. The alternative measures proposed in the discussion below, in lieu of the applicable Appendix J, Type C test, will meet the underlying purpose of the regulation.

10 CFR 50, Appendix J, Paragraphs II.H.4 and III.C requires local leak rate testing of all Torus piping penetrations. An exemption of Type C (local leak rate) testing is requested for Torus containment isolation valves that are on lines that terminate below the minimum suppression pool water level.

This exemption would affect the following valves:

Torus Isolation Valves On Lines That Terminate Below
Minimum Suppression Pool Water Level

<u>Pene. #</u> (N-)	<u>System Description</u>	<u>Valve #</u>	<u>Type</u>
210A,B	RHR Test & Pool Cooling Return	10-19A,B, C&D	CK
216	HPCI Min. Flow	23-62	CK
224	Core Spray Test Line, Unit 2	MO-14-26A 14-66A,C (3) MK-223	GB CK CK
226A-D	RHR Pump Suction	MO-10-13A-D RV-10-72A-D	GT RV
228A-D	Core Spray Pump Suction	MO-14-7A-D	GT
229	Core Spray Pump Min. Flow, Unit 2	14-66B,D (2) MK-223	CK CK
230	RCIC Pump Min. Flow	13-29	CK
234	Core Spray Test Line, Unit 2	MO-14-26B (2) MK-223	GB CK
234A	Core Spray Test Line, Unit 3	MO-14-26B (3) MK-223	GB CK
234B	Core Spray Test Line Unit 3	MO-14-26A (2)MK-223	GB CK
236A	Core Spray Pump Min. Flow, Unit 3	14-66B,D	CK
236B	Core Spray Pump Min. Flow, Unit 3	14-66A,C (2) MK-233	CK CK

Legend

GB - Globe Valve
GT - Gate Valve
CK - Check Valve
RV - Relief Valve

Also included in this request for exemption are small manually operated globe valves that serve as either a vent, drain or sample element root valve. These valves are located between the Torus penetration and the first containment

isolation valve. Although these valves are not considered containment isolation valves, they are a part of the isolation boundary and are currently not Type C (local leak rate) tested.

In lieu of the Type C (local leak rate) testing, the following alternatives will meet the underlying purpose of rule:

- The containment isolation valves are (or will be) stroke tested in conformance with the requirements of ASME Section XI, Subsection IWV for Category B&C valves.
- The lines discharge below the minimum Torus water level and will thus be water filled after an accident which would prevent the release of gaseous fission products.
- Any leakage through these valves will be into closed systems designed to remain operable and to handle contaminated fluids after an accident.
- The integrity of these closed systems is assured by the leakage reduction and maintenance program developed in response to NUREG-0737, Item III.D.1.1.
- Any leakage out of these systems will be into the Reactor Building (Secondary Containment), thus facilitating collection and treatment.

The minimum necessary hardware modifications that would need to be installed in order to Type C (local leak rate) test the aforementioned lines are as follows:

<u>Pen. #</u> <u>(N-)</u>	<u>Hardware Required</u> <u>for each plant</u>
210 A, B	2 - 4" block valves 2 - 1" test connections
216	1 - 4" block valve 1 - 1" test connection
224	1 - 10" block valve 1 - 1" test connection
226 A-D	4 - 24" block valves
228 A-D	4 - 16" block valves
229	1 - 4" block valve 1 - 1" test connection
230	1 - 2" block valve 1 - 1" test connection
234	1 - 10" block valve 1 - 1" test connection
234 A, B	2 - 10" block valves 2 - 1" test connections
236 A, B	2 - 4" block valves 2 - 1" test connections

These modifications required to leak rate test the identified lines would result in undue hardship as a result of the significant monetary expenditures with no commensurate increase in safety levels. Further expenditures would result from the extensive outage time necessary to perform these modifications. Significant radiation exposure to plant personnel would also result from performing the modifications. Additionally, application of these modifications would not be necessary to serve the underlying purpose of the rule which is to ensure that the primary containment serves as an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

Based on the above, there is reasonable assurance against undue Torus isolation valve leakage provided under the exemption and that no increase in the probability or extent of Torus isolation valve leakage is to be expected. Therefore, there is no increase in the probability of higher post accident offsite or onsite doses related to the exemption and therefore no increase in environmental impact beyond that experienced with no exemption.

The alternative measures proposed in the discussion above, will provide assurance that the primary reactor containment is an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

Request for Exemption from the Requirements of Paragraph III.C.1 of 10 CFR 50, Appendix J

Exemption Requested:

Philadelphia Electric Company requests an exemption from the requirements of 10 CFR 50, Appendix J, Paragraph III.C.1. Paragraph III.C.1 states that the test pressure shall be applied in the same direction that accident pressure is applied when the valve is required to perform its safety function unless it can be shown that tests using a test pressure applied in a different direction will yield equivalent or more conservative results.

An exemption is requested from the requirements to Type C (local leak rate) test the below identified inboard containment isolation valves in the reverse direction.

Justification for Requested Exemption:

The requested exemption may be granted by the NRC under 10 CFR 50.12(a) provided that the exemption is: I) authorized by law; II) will not present an undue risk to the public health and safety; III) is consistent with the common defense and security; and IV) justified by the presence of special circumstances of the type identified in Section 50.12(a)(2).

I. The Requested Exemptions and the Activities Which Would be Allowed Thereunder are Authorized by Law

If the criteria established in 10 CFR 50.12(a) are satisfied, and if no other prohibition of law exists to preclude the activities which would be authorized by the requested exemption, the Commission is authorized by law to grant the exemption request. Since, as demonstrated herein, the requested exemption meets the applicable criteria and there is no legal prohibition of its grant, the Commission is authorized by law to grant the exemption.

II. The Requested Exemption Will Not Present an Undue Risk to the Public Health and Safety

For the reasons stated in Section IV, Special Circumstances, the proposed local leak rate testing of several containment isolation valves in the reverse direction, in lieu of the specified Appendix J requirements, does not present undue risk to the public health and safety. The proposed alternative testing will equally determine the condition of the isolation valves and their ability to maintain containment isolation integrity during an accident.

III. The Requested Exemption is Consistent with the Common Defense and Security

The common defense and security are not endangered by this exemption request. Only the potential impact on public health and safety is at issue and has been determined to be inconsequential.

IV. Special Circumstances

Two special circumstances of the type described in 10 CFR 50.12(a)(2) are present in the request under consideration in that: (a) the application of the regulation is not necessary to achieve the underlying purpose of the rule, and; (b) compliance would result in undue hardship.

The purpose of 10 CFR 50, Appendix J is to provide appropriate containment leakage test requirements for nuclear power reactors. The underlying purpose is to demonstrate by periodic testing that the primary reactor containment will be able to perform its function of providing a leak tight barrier against the uncontrolled release of radioactivity to the environment. The alternative measures proposed in the discussion below will meet the underlying purpose of the regulation.

10 CFR 50, Appendix J, III.C.1 states that test pressure shall be applied in the same direction that accident pressure is applied when the valve is required to perform its safety function unless it can be shown that tests using a test pressure applied in a different direction will yield equivalent or more conservative results.

- A. An exemption is requested to Type C (local leak rate) test the following inboard containment isolation valves (gate type) in the reverse direction.

Containment Isolation Valves Tested in Reverse Direction

Pen. # (N-)	System Description	Valve #	Type	Unit(s)
10	Steam to RCIC Turbine	MO-13-15	GT	2 & 3
11	Steam to HPCI Turbine	MO-23-15	GT	2 & 3
12	RHR Shutdown Cooling Suction	MO-10-18	GT	2 & 3
14	RWCU Pump Suction	MO-12-15	GT	2
212, 214	HPCI & RCIC Turbine	MO-4244, 4244A	GT	2
217B	Exhaust	MO-5244, 5244A	GT	3
233	HPCI Test Line	MO-23-31	GT	2
235	HPCI Test Line	MO-23-31	GT	3

The basis for this exemption lies in the fact that the normal force between the seat and the disc generated by stem force alone is greater than ten (10) times the normal force induced by test differential pressure of 49.1 psig. Therefore it is unlikely that the 49.1 psig test pressure will lift the valve disc off its seat during the local leak rate test due to the magnitude of the thrust generated. The sealing capabilities are essentially equivalent regardless of the direction in which the test pressure is applied. Therefore, in lieu of the forward test, a reverse test pressure would be applied which would equally demonstrate the sealing capabilities of the valves.

The necessary hardware modifications that would need to be installed in order to Type C (local leak rate) test the aforementioned lines are as follows:

<u>Pen. #</u> <u>(N-)</u>	<u>Hardware Required for</u> <u>Each Unit</u>
10	1 - 3" block valve 1 - 1" test connection
11	1 - 10" block valve 1 - 1" test connection
12	1 - 1" test connection
14	1 - 1" test connection
212, 214, 217B	1 - 3" block valve 1 - 1" test connection
233	1 - 4" block valve 1 - 1" test connection
235	1 - 4" block valve 1 - 1" test connection

Application of the Appendix J, III.C.1 requirements would require significant monetary expenditures to install the above block valves and test connections for forward direction testing with no commensurate increase in safety levels. Additionally, application of these modifications would not be necessary to serve the underlying purpose of the rule which is to ensure that the primary containment serves as an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

- B. The following inboard containment isolation valves (gate type) require exemptions from Appendix J requirements for forward direction testing since block valves and test

connections do not exist. Although the normal force ratios for these valves do not meet the factor of ten criteria discussed above, margin does exist as indicated below:

Containment Isolation Valves Tested in Reverse Direction

<u>Pen. #</u> <u>(N-)</u>	<u>System Description</u>	<u>Valve #</u>	<u>Type</u>	<u>Unit(s)</u>	<u>Normal</u> <u>Force</u> <u>Ratio</u>
39B,A	RHR Containment Spray	MO-10-31 A,B	GT	2 & 3	7.97
225	RCIC & Torus Water Cleanup Suction	MO-14-70 MO-13-41	GT GT	2 & 3 2 & 3	4.48 3.07
227	HPCI Pump Suction	MO-23-58	GT	2 & 3	1.76

In lieu of the forward flow test, a reverse flow test would be done which would equally demonstrate the sealing capabilities of the valves.

Additionally, valves MO-14-70, MO-13-41, MO-23-58 will remain water filled following all accidents which will prevent the release of gaseous fission products. Leakage in the proper direction through all valves is included in the Type A test results. Leakage through MO-23-58 would be into a closed system designed to handle contaminated fluids following an accident per NUREG-0737, Item III.D.1.1.

The necessary hardware modifications that would need to be installed in order to Type C (local leak rate) test the aforementioned lines are as follows:

<u>Pen. #</u> <u>(N -)</u>	<u>Hardware Required for</u> <u>Each Unit</u>
39B,A	2-14" block valves 2-1" test connections
225	1 - 6" block valve 1 - 1" test tap
227	1 - 16" block valve

Application of the Appendix J, III.C.1 requirements would require significant monetary expenditures to install the above block valves and test connections for forward testing with no commensurate increase in safety levels thus creating undue hardship. Additionally, application of these modifications would not be necessary to serve the underlying

purpose of the rule which is to ensure that the primary containment serves as an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

- C. An exemption is requested to Type C (local leak rate) test the following inboard containment isolation valve (gate type) in the reverse direction:

Pen. # (N-)	System Description	Valve #	Type	Unit(s)
8	Main Steam Drain	MO-2-74	GT	2 & 3

The calculation of a normal force ratio on this particular valve would be meaningless due to the unique design of the valve's double disc parallel wedge assembly (Anchor Darling I.D. # E-3073-1). This valve is designed to transmit sufficient thrust to each disc to maintain low pressure sealing. As the differential pressure across the disc increases, the seating load also increases, thus providing a tight seal throughout the entire range of operating differential pressures. This valve is designed to seal against an operating differential pressure of 1100 psig which is more than twenty (20) times the post accident test pressure. Therefore, in lieu of the forward test, a reverse test pressure would be applied which would equally demonstrate the sealing capabilities of the valve.

If testing in the forward direction was mandated, undue hardship would result due to the cost of installation of the necessary block valves and test connections with no commensurate increase in safety levels. Additionally, application of this modification would not be necessary to serve the underlying purpose of the rule which is to establish appropriate containment leakage test requirements.

- D. An exemption is requested to Type C (local leak rate) test the following inboard containment isolation valves (globe type) in the reverse direction:

Pen. # (N-)	System Description	Valve #	Type	Unit(s)
32C,D	ILRT Test Connection	MK-130	GB	2 & 3
218C	ILRT Test Connection	MK-130	GB	2 & 3

The above valves are oriented such that the local leak rate test pressure is applied in the reverse direction and tends to push the disc into its seat. Documentation has been

obtained from Rockwell International Edwards Valve Division which states that test pressure applied at 50 psig either over or under the disc of this particular valve will yield equivalent leakage results. Therefore, in lieu of the forward test, a reverse test pressure would be applied which would equally demonstrate the sealing capabilities of the valves.

If testing in the forward direction was mandated, undue hardship would result due to the cost of installation of the necessary block valves and test connections with no commensurate increase in safety levels. Additionally, application of these modifications would not be necessary to serve the underlying purpose of the rule which is to ensure that the primary containment serves as an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

Based on the above discussion, there is no increase in the probability of higher post accident offsite or onsite doses related to the exemption, and therefore, no increase in environmental impact beyond that experienced with no exemption.

The alternative measures proposed in the discussion above, will provide assurance that the primary reactor containment is an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.

Request for Exemption from the Requirements of Paragraph
II.H.4 and III.C of 10 CFR 50, Appendix J

Exemption Requested:

Philadelphia Electric Company requests an exemption from the requirements of 10 CFR 50, Appendix J, Paragraphs II.H.4. and III.C. Paragraphs II.H.4 and III.C require local leak rate testing of containment isolation valves. An exemption is requested from local leak rate testing the individual isolation valves in the Control Rod Drive (CRD) insert and withdraw lines to the CRD hydraulic units.

Justification for Requested Exemption:

The requested exemption may be granted by the NRC under 10 CFR 50.12(a) provided that the exemption is: I) authorized by law; II) will not present an undue risk to the public health and safety; III) is consistent with the common defense and security; and IV) justified by the presence of special circumstances of the type identified in Section 50.12(a)(2).

I. The Requested Exemptions and the Activities Which Would Be Allowed Thereunder are Authorized by Law

If the criteria established in 10 CFR 50.12(a) are satisfied, and if no other prohibition of law exists to preclude the activities which would be authorized by the requested exemption, the Commission is authorized by law to grant the exemption request. Since, as demonstrated herein, the requested exemption meets the applicable criteria and there is no legal prohibition to its grant, the Commission is authorized by law to grant the exemption.

II. The Requested Exemption Will Not Present an Undue Risk to the Public Health and Safety

For the reasons stated in Section IV, Special Circumstances, the requested exemption from local leak rate testing the individual isolation valves in the Control Rod Drive (CRD) insert and withdraw lines to the CRD hydraulic units does not present undue risk to the public health and safety.

III. The Requested Exemption is Consistent with the Common Defense and Security

The common defense and security are not endangered by this exemption request. Only the potential impact on public health and safety is at issue and has been determined to be inconsequential.

IV. Special Circumstances

Two special circumstances of the type described in 10 CFR 50.12(a)(2) are present in the request under consideration in that; (a) the application of the regulation is not necessary to achieve the underlying purpose of the rule, and; (b) compliance would result in undue hardship.

The purpose of 10 CFR 50, Appendix J is to provide appropriate containment leakage test requirements for nuclear power reactors. The underlying purpose is to demonstrate by periodic testing that the primary reactor containment will be able to perform its function of providing a leak tight barrier against the uncontrolled release of radioactivity to the environment. The alternative measures proposed in the discussion below will meet the underlying purpose of the regulation.

10 CFR 50, Appendix J, Paragraphs II.H.4 and III.C requires local leak rate testing of containment isolation valves. An exemption is requested from local leak rate testing the individual isolation valves in the Control Rod Drive (CRD) insert and withdrawal lines to the CRD hydraulic units. These valves are identified on each CRD hydraulic unit as SV-13-120, 121, 122 and 123, CV-13-126 and 127, and check valve 13-128 on Piping and Instrumentation Diagram No. M-357 for the Peach Bottom Atomic Power Station.

The CRD insert and withdrawal lines to the CRD hydraulic units do not communicate with containment atmosphere and represent a closed system. These lines are constantly under water pressure from reactor vessel liquid level at reactor vessel pressure of 1000 psig and are a limiting barrier to the release of gaseous fission products. A local leak rate test under the air pressure of 49.1 psig would not serve the underlying purpose of the rule considering that the lines are under a water pressure of 1000 psig. Additionally, testing of the 1295 valves at the required pressure of 49.1 psig would result in large manpower expenditures and thus undue hardships with no further verification that the valves would act as a leak tight barrier. External leakage from the system will be visually monitored as a part of the reactor vessel hydrostatic test performed every refueling outage. This exemption is consistent with the leak testing program employed at other Boiling Water Reactor Mark I power plants.

Based on the above discussion, there is reasonable assurance against undue CRD insert and withdraw line leakage. Therefore, there is no increase in the probability of higher post accident offsite or onsite doses related to the exemption, and therefore, no increase in environmental impact beyond that experienced with no exemption.

The measures discussed above, will provide assurance that the primary reactor containment is an essentially leak tight barrier against the uncontrolled release of radioactivity to the environment.