

November 13, 1990

Docket Nos. 50-277  
and 50-278

Mr. George A. Hunger, Jr.  
Director-Licensing, MC 5-2A-5  
Philadelphia Electric Company  
Nuclear Group Headquarters  
Correspondence Control Desk  
P. O. Box No. 195  
Wayne, Pennsylvania 19087-0195

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Dear Mr. Hunger:

SUBJECT: ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT FOR  
APPENDIX J EXEMPTION, PEACH BOTTOM ATOMIC POWER STATION, UNIT  
NOS. 2 AND 3 (TAC NOS. 76195 AND 76196)

Enclosed for your information is a copy of the "Environmental Assessment and Finding of No Significant Impact" related to a request for exemption from certain requirements of 10 CFR Part 50, Appendix J. By letters dated April 21 and June 23, 1988, the licensee submitted requests for exemption which would allow local leak rate testing (LLRT) of the main steam isolation valves (MSIVs) at reduced test pressure and exclusion of the Traversing In-Core Probe system shear valves from Type C testing requirements.

The notice has been forwarded to the Office of the Federal Register for publication.

Sincerely,

/s/

Walter R. Butler, Director  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
Environmental Assessment

cc w/enclosure:  
See next page

[GYSF1]

\*See previous concurrence

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MO'Brien	GSuh:mj		WButler	
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

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Sincerely,

A handwritten signature in cursive script that reads "Walter R. Butler".

Walter R. Butler, Director  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Enclosure:  
Environmental Assessment

cc w/enclosure:  
See next page

Mr. George A. Hunger, Jr.  
Philadelphia Electric Company

Peach Bottom Atomic Power Station,  
Units 2 and 3

cc:

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UNITED STATES NUCLEAR REGULATORY COMMISSION

PHILADELPHIA ELECTRIC COMPANY  
PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
DELMARVA POWER AND LIGHT COMPANY  
ATLANTIC CITY ELECTRIC COMPANY

DOCKET NOS. 50-277 AND 50-278

ENVIRONMENTAL ASSESSMENT AND FINDING OFNO SIGNIFICANT IMPACT

The U. S. Nuclear Regulatory Commission (the Commission) is considering issuance of an exemption from certain requirements of 10 CFR Part 50, Appendix J, to the Philadelphia Electric Company, et. al. (the licensee) for the Peach Bottom Atomic Power Station, Units 2 and 3 located at the licensee's site in York County, Pennsylvania.

ENVIRONMENTAL ASSESSMENTIdentification of the Proposed Action:

The proposed action would grant relief from Sections II.H.4 and III.C.2 of Appendix J which require leak rate testing of the main steam isolation valves (MSIVs) at the peak calculated containment pressure related to the design basis accident and Sections II.H.1 and III.C of Appendix J which require Type C local leak rate testing on the Traversing In-Core Probe (TIP) system shear valves.

The Need for the Proposed Action:

Each main steam line is provided with two globe type MSIVs that are angled in order to afford better sealing in the direction of the post-accident pressure. The orientation of the inboard MSIV is such that testing the valve in the reverse

direction tends to unseat the valve disc. Testing of the inboard and outboard MSIVs by pressurizing the volume between the valves at the full test pressure of Pa, the calculated peak containment internal pressure related to the design basis accident, would lift the disc of the inboard valve, resulting in excessive leakage to the reactor vessel and in a meaningless test. The licensee proposed to test the MSIVs at a reduced test pressure of 25 psig, about one-half of the peak post-accident pressure, to avoid lifting the disc of the inboard valve.

Each of the five TIP guide tubes is equipped with two isolation valves, a ball valve that provides the primary means of containment isolation, and a shear valve that cuts the cable and isolates the guide tube in the event that isolation is required and the drive cable can not be withdrawn. The shear valve is an explosive-type valve, direct current-operated, with monitoring of each actuating circuit provided. The ball valve is Type C tested in accordance with Appendix J. It is impractical to test the shear valves since they require testing to destruction. In lieu of leak testing and ultimate destruction of the shear valves, the licensee proposed to perform periodic checks of the functional capability of the TIP shear valves.

Environmental Impacts of the Proposed Action:

The main steam system design in most operating boiling water power reactor plants, including Peach Bottom, necessitates leak testing of the MSIVs by pressurizing the pipes between the inboard and outboard valves resulting in test pressure acting on the inboard valve in the direction opposite to accident pressure. The MSIVs are angled in the main steam lines in the direction of flow to afford better sealing upon closure. Consideration of this feature was

included at the design stage of the facility when the original test pressure of 25 psig was established. The licensee proposed to test the MSIVs at a test pressure of 25 psig to avoid lifting the inboard valve disc. The total observed leakage through both the inboard and outboard valves is then conservatively assigned to the penetration. Testing of the MSIVs at a reduced pressure of 25 psig will result in a conservative determination of the leakage rate through the MSIVs. Testing at the proposed reduced pressure will provide an equivalent level of protection as that provided by the testing requirements of Section III.C.2. The underlying purpose of the requirements of Sections II.H.4 and III.C.2 is to ensure the integrity of the primary containment and its penetrations and to assure that primary containment leakage is within acceptable limits during plant operation. Since that purpose will be served by the testing of the MSIVs at a reduced pressure of 25 psig, testing of the MSIVs at the full test pressure of Pa is unnecessary.

The measured leakage rate for any one main steam line through the MSIVs is limited to a maximum pathway leakage of 11.5 SCFH as specified in the facility TS. As stated above, the MSIVs in some boiling water reactor (BWR) plants are angled in the main steam lines in order to afford better sealing in the direction of accident pressure. This condition was considered when the test pressure of 25 psig was initially established for the MSIVs of many BWRs. Subsequently, industry experience in testing these valves at a pressure of 25 psig and with an acceptance criterion of 11.5 SCFH has been shown to be effective in determining the condition of these valves.

In lieu of leak testing and ultimate destruction of the TIP shear valves, the licensee committed to the following actions to ensure the shear valves will perform their intended function: (1) Verification of the continuity of the explosive charge circuit which is monitored by an alarm in the control room; (2) Initiation of one explosive squib charge at least once per operating cycle with the replacement charge for the explosive valve to be taken 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; and (3) Replacement of all explosive charges in accordance with the manufacturer's recommended lifetime. The periodic checks of the functional capability of the TIP shear valves provide an equivalent level of protection as that provided by the actual local leak rate testing and consequent destruction of the TIP shear valves, given the fact that the shear valves will be used only when the TIP cable fails to withdraw or the ball valve fails to close. The underlying purpose of the requirements of Sections II.H.1 and III.C 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. Since that purpose will be served by the periodic checks of the functional capability of the TIP shear valves, leak testing and ultimate destruction of the shear valves is unnecessary.

As discussed above, the underlying purpose of the requirements of Appendix J will be served with the proposed exemption. Consequently, the proposed exemption will not increase the probability or consequences of any reactor accidents. In addition, the proposed exemption will not result in increased occupational exposures. The proposed exemption does not affect plant

nonradiological effluents and will have no other environmental impact. Therefore, the Commission concludes that this proposed action would result in no significant radiological or nonradiological environmental impact.

Alternative to the Proposed Action:

Since the Commission concluded that there are no significant environmental effects that would result from the proposed action, any alternatives with equal or greater environmental impacts need not be evaluated. The principal alternative to the exemption would be to require rigid compliance with the requirements of Appendix J discussed above. Such action would not enhance the protection of the environment and would result in unjustified costs for the licensee.

Alternative Use of Resources:

This proposed action does not involve the use of resources not considered previously in the Final Environmental Statement related to the operation of Peach Bottom Atomic Power Station, Units 2 and 3.

Agencies and Persons Consulted:

The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

FINDING OF NO SIGNIFICANT IMPACT

The Commission has determined not to prepare an environmental impact statement for the proposed exemption. Based upon the foregoing environmental assessment, the NRC staff concludes that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this proposed action, see the licensee's letters dated April 21 and June 23, 1988. These letters are available for public inspection at the Commission's Public Document Room, Gelman Building, Lower

Level, 2120 L Street, NW, Washington, DC and at the State Library of Pennsylvania, Government Publications Section, Education Building, Walnut Street and Commonwealth Avenue, Box 1601, Harrisburg, Pennsylvania 17105.

Dated at Rockville, Maryland, this 13th day of November 1990.

FOR THE NUCLEAR REGULATORY COMMISSION



Walter R. Butler, Director  
Project Directorate I-2  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation