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December 21, 1984

Docket Nos. 50-277
50-278

Mr. John F. Stolz, Chief
U. S. Nuclear Regulatory Commission
Operating Reactors Branch #4
Division of Licensing
Washington, DC 20555

SUBJECT: Peach Bottom Atomic Power Station, Units 2 and 3
NRC Request for Additional Information on the
Peach Bottom ISI Program

REFERENCE: Letter, J. F. Stolz (NRC) to
E. G. Bauer, Jr., (PECo.), dated
October 29, 1984

Dear Mr. Stolz:

The reference letter forwarded requests for additional ISI information concerning the proposed second 120-month interval program for Peach Bottom Atomic Power Station Units 2 and 3, and certain exemptions associated with the first 120-month interval. A delayed response to the requests was discussed with Mr. Gerald A. Gears, Peach Bottom NRC Project Manager, and found acceptable.

The requests for additional information are restated below along with our response.

REQUEST 1. By letter dated June 28, 1984, you submitted a proposed Inservice Inspection (ISI) program for the second 10-year inspection interval of Peach Bottom, Units 2 and 3. We will be using this program, along with the documents referenced in it, to review your requests for relief and code-allowed exemptions from the requirements of the 1980 edition (with addenda through Winter 1981) of Section XI of the ASME Boiler and Pressure Vessel Code. If there are any documents not referenced that you believe may aid our review

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(including any additional relief requests), please provide us with copies. If they have been previously furnished to the NRC, please document by reference.

PECo RESPONSE

There are no other documents that can be identified at this time which would aid in NRC review of the proposed second 120 month inspection program for Peach Bottom Units 2 and 3.

REQUEST 2. Referring back to the first 10-year inspection interval, if there are any instances where you have previously not requested relief in the submittals reviewed for the Safety Evaluation Report, you must request such relief, under the terms of subparagraph 10 CFR 50.55a(g)(5)(iv), from the requirements of the Code edition applicable during the first interval. Please submit such requests, if any, at this time.

PECo RESPONSE

At this time, Philadelphia Electric Company requests, pursuant to Section 50.12 of the Commission's regulations, an exemption from performing the following Inservice Inspection provisions of 10 CFR 50.55a(g) during the first 120-month interval for Peach Bottom Unit 3.

1.0 Request for Relief

1.1 Component

Class II Emergency Core Cooling System (ECCS) Components and Piping Previously Exempt Under IWC-1220(c).

1.2 Requirement from Which Relief Requested

Schedule relief under the first 10 year ISI program for inspection of ECCS components and piping in accordance with IWC-1220(c).

1.3 Justification

There is not sufficient time remaining in the current ISI interval to complete the inspection of the subject components and piping, particularly portions of the RHR, Core Spray, and HPCI systems. The following work must be performed prior to the actual required examinations.

1. An examination plan must be developed which includes the physical identification of all pipe welds and components.

2. Erection of a significant amount of scaffolding.

3. Upon gaining access to the piping, the weld crowns require significant rework, since the weld configurations are not conducive to Ultrasonic Testing.

By letter dated May 2, 1983, J. F. Stolz, USNRC, to E. G. Bauer, Jr., PECo, transmitting the Safety Evaluation Report for the first 10-year program, the NRC staff concluded that these examinations should be included and denied the relief request for the current interval. At the time of receipt of this letter, Peach Bottom Unit 3 was undergoing inspections of primary system piping in accordance with IE Bulletin 83-02 and there was not sufficient time to develop the inspection plan for ECCS components necessary to satisfy Code requirements.

1.4 Testing in Lieu of Section XI Requirements

We are proposing a schedule to complete inspections on Class II ECCS components and piping previously exempted under Article IWC-1220(c) of Section XI of the ASME Code. Since five refueling outages have been completed during the current 120-month ISI interval for Unit 3, Philadelphia Electric Company proposes to examine a minimum 1/6 of the total number of subject components and pipe welds required for

examination during the current interval during the next refueling outage. This is based on six inspection periods per 120-month ISI interval. This plan would carry through into the next 120-month ISI interval to ensure that all ECCS component inspections are completed during that interval.

A similar relief request for Peach Bottom Unit 2 was forwarded to the NRC, S. L. Daltroff, PECo, letter to J. F. Stolz, USNRC, December 27, 1983, and found to be acceptable in the NRC response from G. W. Rivenback, USNRC, to E. G. Bauer, Jr., PECo, letter dated June 1, 1984.

2.0 Request for Relief

2.1 Components

Reactor recirculation pumps for Peach Bottom Unit 3 2AP34 & 2BP34, ASME Class 1 (equivalent)

2.2 Requirements from which Relief Requested

Table IWB-2500-1, Categories B-L-2 and B-M-2, require visual examination of the internal pressure boundary surfaces of one pump in each group of pumps of similar function to be performed once per inspection interval.

2.3 Justification

The disassembly of a recirculation pump during the current 120-month interval for the sole purpose of visually inspecting its internal surfaces would result in unnecessary personnel exposure, potential hazards, generation of excessively high amounts of radioactive waste and would be in conflict with the concept, "As Low As Reasonably Achievable." There has been no maintenance required on these pumps during the first ten year interval which would have accommodated visual inspection. As a result of an extensive outage currently in progress on Peach Bottom Unit 2 for replacement of primary

system piping, identical pumps were disassembled and inspected. During this inspection no reportable indications were discovered. Thus, it is appropriate to postpone inspection of the Unit 3 pumps until the second 120 month ISI interval.

2.4 Testing in Lieu of Section XI Requirements

As an alternative inspection, a UT wall thickness surveillance program to verify structural integrity shall be incorporated into the upgraded ISI program to be performed at or near the beginning of the next 120-month interval.

The following testing shall continue to be implemented on the recirculation pumps to assure structural integrity:

1. Hydrostatic pressure tests and leak tests performed periodically.
2. External visual inspections performed during seal maintenance.
3. Continuous vibration monitoring.
4. Continuous drywell leakage monitoring.
5. Visual inspection of internal surfaces upon pump disassembly for maintenance.

3.0 Request for Relief

3.1 Components

ASME Class 1 (equivalent) valves exceeding 4-inches nominal pipe size for Peach Bottom Unit 3. (Recirculation suction, discharge valves and equalizing valves)

3.2 Requirement from which Relief Requested

Table IWB-2500, Category B-M-2, and Table IWB-2600, Item B 6.7 require visual examination of the internal pressure boundary surfaces of one valve in each group of valves of the same design, manufacturing method, manufacturer, and function to be performed once per inspection interval.

3.3 Justification

In order to carry out these inspections, it would be necessary to disassemble these valves during the remainder of the current 120-month interval. Thus it would be impractical due to time limitation, potential safety hazards, and excessive radiation and contamination exposures. Also, a large scope of preliminary work which must be performed (i.e., off loading fuel elements, draining the reactor vessel, plugging the jet pump risers). Consequently, it would be more appropriate to coordinate these inspections with other activities that would require a similar configuration of the NSSS to minimize decontamination and radiation exposures.

We request that relief be granted under the first interval ISI program and commit to the inspection of the subject valves upon valve disassembly for maintenance during the next 120-month interval. There has been no maintenance required on these valves during the first ten year interval which would have permitted visual inspection to be performed. As with the request for relief from examination of the reactor recirculation pump internals, access to identical valves became available and the visual inspection was performed on the Unit 2 valves. During that inspection no flaws requiring repair were discovered. Thus, there exists a high degree of confidence that inspection of the Unit 3 valves can be appropriately postponed until the second 120-month ISI interval.

3.4 Testing in Lieu of Section XI Requirements

As an alternative inspection, a UT wall thickness surveillance program to verify structural integrity shall incorporated into the upgraded ISI program.

The following testing shall continue to be implemented on the subject valves to assure structrural integrity:

1. Hydrostatic pressure testing and leak tests performed periodically.

2. Continuous drywell leakage monitoring.

3. Visual inspection of internal surfaces upon valve disassembly for maintenance.

REQUEST 3. Section 2.2.2 of the Program (p 2-5)

This section lists three areas of Class 1 piping in which it may be impossible to obtain complete volumetric examinations on some welds. These areas are described below:

a. Areas within the containment penetrations,

b. Cast fittings and structures that are not amenable to UT examination or in a system that cannot be drained without draining the RPV, and

c. Any weld that, during the preservice examination (PSI), was found unsuitable for UT examination (and continous evaluation indicates that the state-of-the-art techniques do not allow UT examination) and that cannot be radiographed due to (1) geometry and/or interference from surrounding structures or (2) the system cannot be drained without draining the RPV.

For those welds that are known to present limitations to examination (such as those inside containment penetrations), please provide specific relief requests.

PECo RESPONSE

Philadelphia Electric Company will provide specific relief request for these Class 1 piping welds by January 31, 1985.

REQUEST 4. Subsection IWE of the Code

The above referenced edition of the Code contains a recently issued subsection (IWE) pertaining to containment related examinations. The Peach Bottom program plan, however, contains no provisions for examinations under subsection IWE. Please provide a program for examining the areas subject to this subsection.

PECo RESPONSE

In accordance with Federal Register 48 FR 5532, effective March 9, 1983 Statements of Consideration, the second 120-month ISI program need not address subsection IWE of the code. 48 FR 5532 incorporates, by reference, the Winter 1981 Addenda to the 1980 Edition of Section XI of the ASME Code in 10 CFR 50.55a. However, one of the changes affected by the Rule in 48 FR 5532 states, in part, "The regulation does not currently address the ISI of containments. Since this amendment is only intended to update current regulatory requirements to include latest Code Addenda, the requirements of Subsection IWE are not imposed upon Commission licensees by this amendment." 10CFR50.55a presently only incorporates those portions of Section XI that address the ISI requirements for Class 1, 2, and 3 components and their supports.

Since the second 120-month ISI program will be performed in accordance with the 1980 Edition through Winter 1981 Addenda of Section XI of the ASME code, Subsection IWE for containment-related examinations is not required for Peach Bottom Units 2 and 3.

REQUEST 5. 2.4.1 Request for Relief on Reactor Vessel Welds (p 2-10)

(a) Please provide information on the accessibility of reactor vessel welds to examination from the vessel interior.

(b) What percentage of each beltline longitudinal and circumferential weld is estimated to be accessible from the vessel exterior?

PECo RESPONSE

(a) The shell welds required to be examined in accordance with the 1980 Edition of the Code in the reactor beltline region below the feedwater nozzles are not accessible from the interior of the vessel. Further, all baseline UT examinations of vessel welds were performed from the vessel exterior. Since the interior vessel shell walls are clad with 316 Stainless Steel Cladding the shell welds are realistically inaccessible from the vessel interior.

(b) It is estimated that between 5 and 15 percent of the longitudinal and circumferential welds are typically accessible from the vessel exterior, which is in accordance with the 1974 Edition through Summer 1975 addenda of Code Section XI requirements.

REQUEST 6. 2.4.4 Relief Request on Class 1 System Hydrostatic Testing (p 2-13)

(a) Please show why the relief valves of lowest setting cannot be gagged shut for performance of hydrostatic tests.

(b) The relief request states that removing the relief valves is impractical. We note, however, that the valves are bench-tested when lift tests are required. Please show why a code hydrostatic test cannot be performed when the lowest-set relief valves are removed for bench testing.

PECo RESPONSE

(a) The availability of an appropriate relief valve gag is being pursued with the manufacturer, Target Rock Corporation. We will contact Target Rock Corporation, by way of a letter, to seek their advice and assistance to determine if the relief valves can be safely gagged. This correspondence will be completed by January 7, 1985, and we will advise the Commission by February 1, 1985, of the results of this investigation.

(b) The Peach Bottom Technical Specifications require primary containment integrity to be maintained whenever reactor water temperature is above 212 degrees F and fuel is in the vessel. Since the hydrostatic test boundary extends beyond the primary containment boundary, the hydrostatic test temperature is limited to 212 degrees F. This corresponds to a test pressure of 1082 psig on Table INB-5220-1 of 1980 ASME Boiler & PV Section XI. This pressure is unacceptably close to the installed RV settings of 1105 psi (± 11 psi) and 1115 psi (± 11 psi). We propose to conduct the hydrostatic test with the relief valves in place at a test pressure of 30 psig below the lowest actual relief valve setting. The lowest actual relief valve setting will be determined from the latest available bench test data. We believe that this method is acceptable for the following reasons:

The purpose of the hydrostatic test is to verify primary coolant boundary integrity. Performing the test with portions of the primary boundary removed (relief valves) lessens our assurance of that integrity.

Performing the hydrostatic test with the relief valves in place has enabled us to detect potential malfunctions. Primary boundary valve to pipe flange leaks and premature relief valves "lifting" can be identified for correction to prevent the consequences of these malfunctions during power operations.

Half of the relief valves are removed from each refueling outage for bench testing. They are installed prior to performing the hydrostatic test. Since a safe gaging device is not available, four or more relief valves would have to be removed just to perform the test. The radiation dose incurred due to

this additional removal and reinstallation activity is 15 man-Rem, and is contrary to good ALARA practices. The reinstallation of the relief valves would require 80 hours to complete and have to be performed on critical path.

The difference between the code test pressure (1082 psig) and the proposed test pressure (30 psig less than lowest relief valve sections) is nominally 12 to 18 psig. This pressure differential will not significantly effect any leakage rate or our ability to detect it.

REQUEST 7. 4.4.1 Relief Request on Pressure Testing of Class 3 Systems (p 4-3)

According to the Code edition referenced above, Class 3 systems are to be hydrostatically tested to 110% of the setpoint of the lowest-set relief valve that protects the system or portion of the system. This pressure is considerably less than 110% of design pressure. Please submit a revised relief request based on the capabilities of the various pumps to produce the required pressures. Those sections of each system that actually need relief should be specified.

PECo RESPONSE

The following table lists the pump shutoff head, the lowest-set relief valve setting and the 1980 Code required test pressure for each Class 3 system.

System	System Pump Shutoff Head	Lowest-Set Relief Valve (Psv)	110% of Psv 1980 Code Test Pressure
HPSW (high pressure service water)	430 PSI	450 PSI	495 PSI
ESW (emergency service water)	65 PSI	125 PSI	137.5 PSI
ECS	65 PSI	125 PSI	137.5 PSI

The table demonstrates that testing these systems to 110% of the lowest-set relief valve wetting (Psv) is beyond the

capability of the system pumps and therefore would require the use of a special hydrostatic test pump.

Since valve leak tightness is not a requirement for these Class 3 systems, considerable effort would be required to make the valves sufficiently leak tight to match the inflow capability of the hydrostatic test pump. The maximum capacity of the hydrostatic test pump is limited by the available 3/4 and 1" pipe connections. Consequently, testing at pressures required by the Code is not feasible. Further, the proposed hydrostatic test pressures are significantly higher than the maximum pressures generated by the system pumps (shutoff head) and therefore provides a valid verification of system integrity.

REQUEST 8. 5.3.1 Relief Request on ISI of Component Supports (p 5-1)

Apparently, the requested relief is intended to eliminate duplication of examination and reporting activities between Code requirements and your Technical Specifications. Please submit a revised relief request that shows how the component support program authorized in the Technical Specifications meets or exceeds the requirements of the Code. Alternatively, you may wish to propose a change in the Technical Specifications eliminating the component support program. Such a request would be in line with NRC guidance, which recommends changes in the Technical Specifications to eliminate conflicts with the Code.

PECo RESPONSE

The following provides additional justification for relief from the requirements of Table IWF-2500-1, Category F-C, Item 3.50 of Section XI, of the 1980 Edition of the ASME Code and reflects the surveillance requirements for hydraulic and mechanical snubbers in the current Peach Bottom Technical Specifications.

The current technical specifications for snubber surveillance conform to NRC requirements contained in a generic letter from D. G. Eisenhut, USNRC, to all licensees dated November 20, 1980. These Technical Specifications were approved by the Commission as Amendment Nos. 101 and 103 to the Peach Bottom Technical Specifications as of July 2, 1984.

Snubbers on Class I, Class 2 and Class 3 piping systems, pumps and valves are demonstrated operable by performance of the following inspection program specified in Section 4.11.D (pages 234a through 234e) of the Technical Specifications.

Visual Inspection

All snubbers on safety related systems are visually inspected during normal 18-month fuel cycles for Peach Bottom Units 2 and 3. However, when snubbers fail the visual inspection the inspection schedule is increased as follows.

No. of Snubbers Found Inoperable During Inspection Period	Next Visual Inspection Period
0	18 mo. ± 25%
1	12 mo. ± 25%
2	6 mo. ± 25%
3,4	4 mo. ± 25%
5,6,7	2 mo. ± 25%
8 or more	1 mo. ± 25%

The required inspection interval is not lengthened more than one step at a time.

The visual inspection verifies that (1) there are not indications of damage or impaired operability, (2) attachments are secure, and (3) there is freedom of movement if this can be verified without disconnecting the snubber.

When the fluid port of a hydraulic snubber is found to be uncovered, the snubber shall be determined to be inoperable for the purpose of establishing the next visual inspection interval.

Functional Testing

Once each operating cycle, during shutdown, a representative sample of 10% of each type of (mechanical or hydraulic) snubber is functionally tested in place or in a bench test. For every unit found to be inoperable, an additional 10% of that type of snubber is functionally tested until no more failures are found or all snubbers of that type have been tested.

The representative sample selected for functional testing includes various configurations, operating environments, sizes, and capacities of snubbers. At least 25 % of the sample includes snubbers from the following categories:

1. The first snubber away from each reactor nozzle.

2. Snubbers within five feet of heavy equipment (valves, pumps, turbines, motors).

3. Snubbers connected to safety/relief valve discharge piping within 10 feet of the valve.

If any snubber selected for functional test either fails to lock up or fails to move, the cause shall be evaluated and if the failure is caused by manufacturing or design deficiency, all snubbers of the same design subject to the same defect shall be functionally tested. This testing requirement is independent of the requirements above for snubbers not meeting the functional test acceptance criteria.

In addition to the regular sample, snubbers which failed the previous functional test shall be retested during the next testing cycle. If a failed snubber was replaced, both the replacement snubber and the repaired snubber (if it had been repaired and installed in another position) shall be retested.

The Functional Test Criteria for hydraulic snubbers verify that:

a) Restraining action is achieved within specified range of velocity or acceleration in both compression and tension.

b) Snubber bleed rate is within the specified range in both tension and compression. Snubbers specifically rquired not to displace under continuous load have this capability verified.

The Functional Test Criteria for mechanical snubbers verify that:

a) The force that initiates free movement of the snubber rod in either tension or compression is less than the specified maximum drag force. Drag force shll not have increased more than 50% since the last functional test.

b) Restraining Action is achieved within the specified range of velocity or acceleration in both tension and compression.

c) Snubber release rate, where required, is within the specified range in compression or tension. Snubbers specifically required not to displace under continuous load have this capability verified.

The visual inspection frequency for snubbers on Class 1, 2, and 3 systems as specified in the Technical Specifications is in accordance with Table IWF-2500-1, Category F-C, Item F 3.50. The functional test requirements for mechanical and hydraulic snubbers provide additional assurance that the snubbers function as designed under various loading conditions.

If any further information is required to complete your review, please do not hesitate to contact us.

Very truly yours,

cc: J. H. Williams, Resident Inspector