



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

ENCLOSURE

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE INSERVICE TESTING PROGRAM AND REQUESTS FOR RELIEF
PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3
DOCKET NOS. 50-277 AND 50-278

INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a(g), requires that inservice testing (IST) of ASME Code Classes 1, 2, and 3 pumps and valves be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda, except where specific written relief has been requested by the licensee and granted by the Commission pursuant to 10 CFR 50.55(a)(3)(i), (a)(3)(ii), or (g)(6)(i). In requesting relief, the licensee must demonstrate that: (1) the proposed alternatives provide an acceptable level of quality and safety; (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety; or (3) the conformance with certain requirements of the applicable Code edition and addenda is impractical for its facility.

The Regulation, 10 CFR 50.55a(a)(3)(i), (a)(3)(ii), and (g)(6)(i), authorizes the Commission to grant relief from these requirements upon making the necessary findings. The NRC staff's findings with respect to granting or not granting the relief requested as part of the licensee's IST Program are contained in the Safety Evaluation (SE) issued on the licensee's program.

The IST program addressed in this report covers the second ten-year inspection interval. The second ten-year interval for Units 2 and 3 commenced July 6, 1984 and December 13, 1984, respectively. The licensee's program was submitted in a letter dated June 29, 1988, which was amended by a letter dated September 11, 1990.

The program is based on the requirements of Section XI of the ASME Code, 1980 Edition through the Winter 1981 Addenda.

EVALUATION

The IST program and the requests for relief from the requirements of Section XI have been reviewed by the staff with the assistance of its contractor, EG&G Idaho, Inc. (EG&G). In addition, EG&G and staff members met with licensee representatives on February 22 and 23, 1988, in a working session to discuss questions resulting from the review. The Technical Evaluation Report (TER) provided as Attachment 1 is EG&G's evaluation of the licensee's inservice testing program and relief requests. The staff has reviewed the TER and concurs with and adopts the evaluations and conclusions contained in the TER. A summary of the pump and valve relief request determinations is presented in Table 1. The granting of relief is based upon the fulfillment of any

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commitments made by the licensee in its basis for each relief request and the alternative proposed testing.

No relief requests were denied; however, fourteen relief requests were granted with certain conditions (TER Sections 3.1.1.1, 3.2.1.1, 3.5.1.1, 3.7.1.1, 3.7.1.2, 3.7.1.3, 3.7.1.4, 3.8.1.1, 3.8.2.1, 3.8.2.2, 3.9.1.1, 3.9.1.2, 3.9.1.3, and 3.9.1.4) and two relief requests were granted on an interim basis (TER Sections 2.3.1.1 and 2.3.1.2). The licensee should refer to the specific TER section for a detailed discussion of these cases. These conditions are listed in the TER Appendix C, which also lists other IST program anomalies identified during the review. The licensee should resolve all the items listed in Appendix C in accordance with the staff guidance therein. Program/procedure changes covered by items 1, 2, 3, 7, 9 and 10 in Appendix C should be made within six months of receipt of this SE. Item 4 should be resolved by the Unit 2 1991 refueling outage. Items 5, 6, and 8 should be actively pursued and if an alternate testing method is developed, the affected relief requests should be revised or withdrawn.

CONCLUSION

Based on the review of the licensee's IST relief requests, the staff concludes that the relief requests as evaluated and modified by this SE will provide reasonable assurance of the operational readiness of the pumps and valves to perform their safety related functions. The staff has determined that granting relief, pursuant to 10 CFR 50.55a(a)(3)(i), (a)(3)(ii) and (g)(6)(i), is authorized by law and will not endanger life or property, or the common defense and security and is otherwise in the public interest. In making this determination the staff has considered the alternate testing being implemented, compliance resulting in a hardship without a compensating increase in safety, and the impracticality of performing the required testing considering the burden if the requirements were imposed. The last column of Table 1 identifies the regulation under which the requested relief is granted.

During the review of the licensee's inservice testing program, the staff has identified certain misinterpretations or omissions of Code requirements. These items are summarized in the TER Appendix C. The IST program relief requests for Peach Bottom Atomic Power Station, Units 2 and 3 provided by a submittal dated June 29, 1988, as amended by a letter dated September 11, 1990, are acceptable for implementation provided that the items noted above are corrected promptly. New or revised relief requests contained in any subsequent revisions should not be implemented without prior approval by NRC, unless they are relief requests meeting the positions in Generic Letter 89-04, Attachment 1.

Principal Contributor: R. Li

Dated: January 17, 1991

PEACH BOTTOM ATOMIC POWER STATION

TABLE 1.

SUMMARY OF RELIEF REQUESTS

| <u>Relief Request</u> | <u>TEP Section</u> | <u>Section XI Requirement Pump or Valve Number</u> | <u>Alternate Test Method</u> | <u>Relief Action by USNRC</u> |
|-----------------------|--------------------|---|---|--|
| PUMPS | | | | |
| GPRR-1 | 2.1.1.1 | IWP-4510, Vibration amplitude. All pumps in the program | Vibration velocity measurements | Granted (a)(3)(i) |
| GPRR-2 | 2.1.2.1 | IWP-3300, Annual bearing temperature. All pumps in the program | Quarterly vibration velocity measurements | Granted (a)(3)(i) |
| 11-PRR-1 | 2.2.1.1 | IWP-4600, Flow rate measurement. Stand-by liquid control pumps, 2AP040, 2BP040, 3AP040, 3BP040 | Calculate flow rate | Granted (g)(6)(i) |
| 33-FRR-1 | 2.3.1.1 | IWP-4600, Flow measurement. Emergency service water pumps, OAP057, OBP057, emergency, service water booster pumps, OAP163, OBP163 | Measure discharge pressure under no flow conditions | Interim Granted until Unit 2 '91 refueling outage. Must measure flow rate after outage (a)(3)(ii) |
| 48-PRR-1 | 2.3.1.2 | IWP-4600, Flow measurement. Emergency cooling water pump, OOP186 | Measure discharge pressure under no flow conditions | Interim Granted until Unit 2 '91 refueling outage. Must measure flow rate after outage (a)(3)(ii) |
| 50-PRR-1 | 2.4.1.1 | IWP-4600, Flow rate measurement. Emergency diesel generator fuel oil transfer pumps, OAP060, OBPO60, OCP060, ODP060 | Calculate flow rate | Granted (g)(6)(i) |

TABLE 1. (continued)

| <u>Relief Request</u> | <u>TER Section</u> | <u>Section XI Requirement Pump or Valve Number</u> | <u>Alternate Test Method</u> | <u>Relief Action by USNRC</u> |
|-----------------------|--------------------|---|--|----------------------------------|
| VALVES | | | | |
| GVRR-1 | 3.1.1.1 | IWV-3420 through -3427, CIV leak rate testing. All containment isolation valves | Utilize 10 CRF 50, Appendix J and evaluate as groups. | Granted with provision (g)(6)(i) |
| GVRR-2 | 3.1.2.1 | IWV-3521, Quarterly exercising. All excess flow check valves | Functional testing during refueling outages | Granted (g)(6)(i) |
| GVRR-? | 3.1.3.1 | IWV-3417, Trending valve stroke times. All rapid-acting valves | Assign a maximum value of limiting stroke time of 2 sec. | Granted (a)(3)(i) |
| 01-VRR-1 | 3.2.1.1 | IWV-3411 and -3413, Quarterly exercising and stroke timing. ADS valves, RV-2(3)-01-071A, -071B, -071C, -071G, -071K | Full-stroke exercise during refueling outages | Granted with provision (g)(6)(i) |
| 03-VRR-1 | 3.3.1.1 | IWV-3411 and -3413(b), Quarterly exercising and stroke timing. CV-2(3)-03-13126AA-HC, -13127AA-HC | Exercise during scram testing | Granted, (a)(3)(ii) |
| 03-VRR-1 | 3.3.2.1 | IWV-3521, Quarterly check valve exercising. Control rod scram discharge header check, CHK-2(3)-03-13114AA-HC | Exercise during scram testing | Granted (a)(3)(ii) |
| 06-VRR-1 | 3.4.1.1 | IWV-3520, Quarterly check valve exercising. Reactor feedwater header checks, CHK-2(3)-06-028A, -028B, -096A, -096B | Verify closure during refueling outages | Granted (g)(6)(i) |

TABLE 1. (continued)

| <u>Relief Request</u> | <u>TER Section</u> | <u>Section X¹ Requirement Pump or Valve Number</u> | <u>Alternate Test Method</u> | <u>Relief Action by USNRC</u> |
|-----------------------|--------------------|---|---|----------------------------------|
| 10-VRR-1 | 3.5.1.1 | IWV-3521, Quarterly check valve exercising. RHR pump minimum flow checks, CHK-2(3)-10-019A, -019B, -019C, -019D | Verify closure by disassembly during refueling outages | Granted with provision (g)(6)(i) |
| 10-VRR-2 | 3.5.1.2 | IWV-3521, Quarterly check valve exercising RHR system fill checks, CHK-2(3)-10-063, -0184A, -184B, -064, -183A, -183B | Verify closure by leak testing as a pair at cold shutdowns | Granted (g)(6)(i) |
| 11-VRR-1 | 3.6.1.1 | IWV-3521, Quarterly check valve exercising. Standby liquid control injection checks, CHK-2(3)-11-016 | Full-stroke exercise during refueling outages. | Granted (g)(6)(i) |
| 11-VRR-1 | 3.6.2.1 | IWV-3521, Quarterly check valve exercising. Standby liquid control injection checks, CHK-2(3)-11-017 | Full-stroke exercise during refueling outages | Granted (g)(6)(i) |
| 13-VRR-1 | 3.7.1.1 | IWV-3521, Quarterly check valve exercising. RCIC pump minimum flow checks, CHK-2(3)-13-029 | Verify closure by disassembly during refueling outages | Granted with provision (g)(6)(i) |
| 13-VRR-2 | 3.7.1.2 | IWV-3521, Quarterly check valve exercising. RCIC pump suppression pool suction checks, CHK-2(3)-13-040 | Partial-stroke quarterly and verify full-stroke by valve disassembly during refueling outages | Granted with provision (g)(6)(i) |

TABLE 1. (continued)

| <u>Relief Request</u> | <u>TER Section</u> | <u>Section XI Requirement Pump or Valve Number</u> | <u>Alternate Test Method</u> | <u>Relief Action by ISNRC</u> |
|-----------------------|--------------------|---|--|----------------------------------|
| 13-VRR-3 | 3.7.1.3 | IWV-3521, Quarterly check valve exercising. RCIC injection testable checks, AO-2(3)-13-022 | Partial-stroke each cold shutdown and verify full-stroke by disassembly during refueling outages | Granted with provision (g)(6)(i) |
| GVR-4 | 3.7.1.4 | IWV-3521, Quarterly check valve exercising. RCIC turbine exhaust line vacuum breaker VRV-2(3)-13-139A, -139B, -139C, -139D | Verify operability as a unit | Granted with provision (g)(6)(i) |
| 14-VRR-2 | 3.8.1.1 | IWV-3521, Quarterly check valve exercising. Core spray injection testable checks, AO-2(3)-14-013A, -013B | Partial-stroke each cold shutdown and verify full-stroke by disassembly during refueling outages | Granted with provision (g)(6)(i) |
| 14-VRR-1 | 3.8.2.1 | IWV-3521, Quarterly check valve exercising. Core spray pump minimum flow line checks, CHK-2(3)-14, -066A, -066B, -066C, -066D | Stroke open quarterly and verify closure by disassembly at refueling outages | Granted with provision (g)(6)(i) |

TABLE 1. (continued)

| <u>Relief Request</u> | <u>TER Section</u> | <u>Section XI Requirement Pump or Valve Number</u> | <u>Alternate Test Method</u> | <u>Relief Action by USNRC</u> |
|-----------------------|--------------------|--|--|----------------------------------|
| 14-VRR-1 14-VRR-3 | 3.8.2.2 | IWV-3521, Quarterly check valve exercising. Core spray stay-fill check valves, CHK-2-14-21541, -21577A, -21577B, -29036A, -29036B, -29051A, -29051B, -2(3)-14-023A, -023C, -3-14-31541, -31577A, -31577B, -39036A, -39036B, -39051A, -39051B, -2(3)-14-023B, -023D | Stroke open quarterly and verify closure by disassembly during refueling outages | Granted with provision (g)(6)(i) |
| 23-VRR-1 | 3.9.1.1 | IWV-3521, Quarterly check valve exercising. HPCI pump minimum flow checks CHK-2(3)-23-062 | Stroke open quarterly and verify closure by disassembly during refueling outages | Granted with provision (g)(6)(i) |
| 23-VRR-2 | 3.9.1.2 | IWV-3521, Quarterly check valve exercising. HPCI pump suppression pool suction checks, CHK-2(3)-23-061 | Partial-stroke quarterly and verify full-stroke by disassembly during refueling outages | Granted with provision (g)(6)(i) |
| 23-VRR-3 | 3.9.1.3 | IWV-3521, Quarterly check valve exercising. HPCI injection testable check, AO-2(3)-23-018 | Partial-stroke each cold shutdown and verify full-stroke by disassembly during refueling outages | Granted with provision (g)(6)(i) |

TABLE 1. (continued)

| <u>Relief Request</u> | <u>TER Section</u> | <u>Section XI Requirement Pump or Valve Number</u> | <u>Alternate Test Method</u> | <u>Relief Action by USNRC</u> |
|-----------------------|--------------------|---|---|----------------------------------|
| GVR-4 | 3.9.1.4 | IWV-3521, Quarterly check valve exercising. HPCI turbine exhaust line vacuum breaker checks, VRV-2(3)-23-140A -140B, -140C, -140D | Verify operability as a unit | Granted with provision (g)(6)(i) |
| 50-VRR-1 | 3.10.1.1 | IWV-3413(a), Stroke timing. Emergency diesel generator air start valves AO-0-50-7231A, -7231B, -7231C, -7231D, -7232A, -7232B, -7232C, -7232D, SV-0-50- 7235A, -7235B, -7235C, -7235D | Verify proper operability by monitoring proper diesel generator start time | Granted (g)(6)(i) |
| 51-VRR-3 | 3.11.1.1 | IWV-3521, Quarterly check valve exercising. Drywell/torus vacuum breaker nitrogen supply checks, CHK-2-51-23261, -3-51-33261 | Verify closure each refueling outage by Appendix J leak testing | Granted (g)(6)(i) |
| 51-VRR-2 | 3.11.2.1 | IWV-3521, Quarterly check valve exercising. Main steam safety/relief and ADS accumulator nitrogen supply checks, CHK-2(3)-51 -257A, -257B, -257C, -257G, -257K | Full-stroke during cold shutdowns when the drywell is de-inerted and during refueling outages | Granted (g)(6)(i) |
| 51-VRR-1 | 3.11.2.2 | IWV-3521, Quarterly check valve exercising. Main steam safety/relief and ADS accumulator nitrogen supply checks, CHK-2(3)-51-082A to D; CHK-2-51-23205A, B, C, G, K; CHK-3-51-33205A, B, C, G, K. | Full-stroke during cold shutdowns when the drywell is de-inerted and during refueling outages | Granted (g)(6)(i) |