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Georgia Power
the southern electric system

March 28, 1995

Docket Nos. 50-321
50-366

HL-4800

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Edwin I. Hatch Nuclear Plant
Request for Use of Alternative Rules For
10-Year Hydrostatic Testing for Class 1, 2 and 3 Systems
Based on ASME Code Case N-498-1

Gentlemen:

Currently, the American Society of Mechanical Engineers (ASME) Section XI Code requires that hydrostatic tests be performed once during the 10-year interval. On May 11, 1994, ASME issued Code Case N-498-1 entitled "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems" which delineates a set of alternative rules for the 10-year hydrostatic tests required by ASME Section XI. In accordance with the provisions of 10 CFR 50.55a(a)(3)(i), Georgia Power Company (GPC) proposes an alternative test using Code Case N-498-1 in lieu of performing the 10-year hydrostatic tests required by ASME Section XI.

Code Case N-498-1 provides for an alternative which will retain an acceptable level of quality and safety for Class 1, 2, and 3 systems. The ASME Section XI Working Group on Pressure Testing concluded that no additional benefit is gained by conducting the existing system hydrostatic tests in place of the alternate rules which require a leak test at nominal operating pressure. The conclusion of the group was that hydrostatic testing at the Section XI code pressures does not verify structural integrity, and in fact, the slightly higher test pressures currently called for in the code could result in operational difficulties as well as extended outages and increased costs. By implementing the alternative testing provisions of ASME Code Case N-498-1, personnel radiation dose, outage testing time, and costs can be reduced.

Units 1 and 2 are currently in the third period of the second ten year inservice inspection interval. The current interval will expire on December 31, 1995. GPC requests authorization of the alternative rules for the remainder of the second interval.

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If Code Case N-498-1 has not been included in Regulatory Guide 1.147, "Inservice Inspection Code Case acceptability - ASME Section XI Division 1," by the beginning of the third interval, GPC will request similar authorization at that time to maintain consistency.

The Relief Request and Code Case N-498-1 are attached for Nuclear Regulatory Commission (NRC) staff review. Since a 10 year hydrostatic test on a Class 3 system is due during the upcoming Fall Unit 2 Outage, NRC approval is requested by September 15, 1995.

Should you have any questions in this regard, please contact this office.

Sincerely,

J. T. Beckham, Jr.

JKB/eb

Enclosures:
1. Relief Request
2. ASME Code Case N-498-1

cc: *Georgia Power Company*
Mr. H. L. Sumner, Jr., Nuclear Plant General Manager
NORMS

U. S. Nuclear Regulatory Commission, Washington, D. C.
Mr. K. Jabbour, Licensing Project Manager - Hatch

U. S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. B. L. Holbrook, Senior Resident Inspector - Hatch

Enclosure 1

Edwin I. Hatch Nuclear Plant
Second 10-Year Interval
Request for Relief

I. Components for Which Relief is Requested

Class 1, 2, and 3 systems subject to hydrostatic testing.

II. ASME Code Section XI Requirements

The 1980 Edition through Winter 1981 addenda, Section XI, Table IWB-2500-1, Table IWC-2500-1, and Table IWD-2500-1, require system hydrostatic and leakage testing as shown below. The Code requires system hydrostatic testing once per 10-year interval at or near the end of the interval.

Examination Category B-E, Item B4.10, B4.11, B4.12 and B4.13
Examination Category B-P, Item B15.11, B15.51, B15.61 and B15.71
Examination Category C-H, Item C7.20, C7.40, C7.60 and C7.80
Examination Category D-A, Item D1.10
Examination Category D-B, Item D2.10
Examination Category D-C, Item D3.10

III. Code Requirement From Which Relief is Requested

Relief is requested from performing the Code Required Hydrostatic Test. Alternative examinations are proposed.

IV. Alternative Examinations

Georgia Power Company (GPC) proposes to perform an alternative examination delineated in Code Case N-498-1 as an option to performing Code Required Hydrostatic Tests. Code Case N-498-1 requires a VT-2 visual examination be performed in conjunction with a system leakage test at nominal operating pressure and temperature.

V. Justification for the Granting of Relief

GPC has determined that hydrostatic tests represent a hardship with little benefit. Hardships are generally encountered with the performance of hydrostatic testing performed in accordance with the Code. For example, since hydrostatic test pressure would be higher than nominal operating pressure, hydrostatic pressure testing frequently requires significant effort to set up and perform. The need to use special equipment and the need for individual valve lineups can cause the testing to impact refueling outage schedules.

Piping components are designed for a number of loadings postulated to occur under the various modes of plant operation. Section XI hydrostatic testing only subjects the piping components to a small increase in pressure over the design pressure and, therefore, does not present a significant change to pressure boundary conditions. Accordingly, hydrostatic pressure testing is primarily regarded as a means to enhance leakage detection during the examination of components under pressure, rather than as a measure to determine the structural integrity of the components.

The ASME Subcommittee Working Group on Pressure Testing concluded that no additional benefit is gained by conducting the existing system hydrostatic tests in place of the alternate rules which require a leak test at nominal operating pressure. The conclusion of the group was that Section XI hydrostatic testing does not verify structural integrity, and in fact, the slightly higher test pressures currently called for in the Code could result in operational difficulties as well as extended outages and increased costs.

Industry experience has demonstrated that leaks are not discovered as a result of hydrostatic test pressures propagating a preexisting flaw through wall. This experience indicates that leaks in most cases are being found when the system is at normal operating pressure. This is largely due to the fact that hydrostatic pressure testing is infrequently performed while system leakage tests at nominal operating pressures are conducted a minimum of once each refueling outage for Class 1 systems, and each 40-month inspection period for Class 2 and 3 systems. In addition, leaks may be identified during system walkdowns by plant operators.

The use of Code Case N-498, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1 and 2 Systems" was previously approved by the NRC in Regulatory Guide 1.147, Revision 11. The alternative rules for Code Class 1 and 2 in Code Case N-498-1 are unchanged from N-498. Code Case N-498 was found to be acceptable because the alternative provided adequate assurance and because compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality or safety.

GPC has determined that the alternative rules provide reasonable assurance of the structural integrity of the Code System. Consequently, an acceptable level of quality and safety will be achieved and public health and safety will be maintained by allowing the proposed alternative examination as an option to the Code requirement.

CASES OF ASME BOILER AND PRESSURE VESSEL CODE

Approval Date: May 11, 1994

See Numerical Index for expiration and any reaffirmation dates.

Case N-498-1
Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems
Section XI, Division 1

Inquiry: What alternative rules may be used in lieu of those required by Section XI, Division 1, Table IWB-2500-1, Category B-P, Table IWC-2500-1, Category C-H, and Table IWD-2500-1, Categories D-A, D-B, and D-C, as applicable, for the 10-year system hydrostatic test?

Reply:

(a) It is the opinion of the Committee that as an alternative to the 10-year system hydrostatic test required by Table IWB-2500-1, Category B-P, the following rules shall be used.

(1) A system leakage test (IWB-5221) shall be conducted at or near the end of each inspection interval, prior to reactor startup.

(2) The boundary subject to test pressurization during the system leakage test shall extend to all Class 1 pressure retaining components within the system boundary.

(3) Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for at least 4 hours for insulated systems and 10 minutes for noninsulated systems. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination.

(4) Test temperatures and pressures shall not exceed limiting conditions for the hydrostatic test curve as contained in the plant Technical Specifications.

(5) The VT-2 visual examination shall include all components within the boundary identified in (a)(2) above.

(6) Test instrumentation requirements of IWA-5260 are not applicable.

(b) It is the opinion of the Committee that, as an alternative to the 10-year system hydrostatic test required by Table IWC-2500-1, Category C-H, the following rules shall be used.

(1) A system pressure test shall be conducted at or near the end of each inspection interval or during the same inspection period of each inspection interval of Inspection Program B.

(2) The boundary subject to test pressurization during the system pressure test shall extend to all Class 2 components included in those portions of systems required to operate or support the safety system function up to and including the first normally closed valve, including a safety or relief valve, or valve capable of automatic closure when the safety function is required.

(3) Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for a minimum of 4 hours for insulated systems and 10 minutes for noninsulated systems. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination.

(4) The VT-2 visual examination shall include all components within the boundary identified in (b)(2) above.

(5) Test instrumentation requirements of IWA-5260 are not applicable.

(c) It is the opinion of the Committee that, as an alternative to the 10-year system hydrostatic test required by Table IWD-2500-1, Categories D-A, D-B, or D-C (D-B for the 1989 Edition with the 1991 and subsequent Addenda), as applicable, the following rules shall be used.

(1) A system pressure test shall be conducted at or near the end of each inspection interval or during the same inspection period of each inspection interval of Inspection Program B.

(2) The boundary subject to test pressurization during the system pressure test shall extend to all Class 3 components included in those portions of systems required to operate or support the safety system function up to and including the first normally closed valve, including a safety or relief valve, or valve capable of automatic closure when the safety function is required.

(3) Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for at least 4 hours for insulated systems and 10 minutes for noninsulated systems. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination.

(4) The VT-2 visual examination shall include all components within the boundary identified in (c)(2) above.

(5) Test instrumentation requirements of IWA-5260 are not applicable.