UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-321/89-19 and 50-366/89-19

Licensee: Georgia Power Company
P. O. Box 1295
Birmingham, AL 35201

Docket Nos.: 50-321 and 50-366 License Nos.: DPR-57 and NPF-5

Facility Name: Hatch 1 and 2

Inspection Conducted: August 21-25, 1989

Inspector: _____ 10/25/89
H. L. Whitener, Team Leader Date Signed

Team Members: S. Sparks
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Accompanying Personnel: G. A. Belisle, Test Programs Section Chief
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Approved By: _____ 10/25/89
G. A. Belisle, Chief Date Signed
Test Programs Section
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SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of inservice testing and followup on previous inspection findings.

Results:

The licensee's core spray system inservice test program appeared to be adequate to ensure that the system's components are maintained in an operational readiness state. However, some problems were identified.

Within the areas inspected, the following violation with three examples was identified:

Failure to implement valve stroke time testing in accordance with ASME Section XI requirements, paragraph 2.b(1).

Failure to reverse flow test check valves, paragraph 2.c.

Failure to test relief valve set points at proper frequencies, paragraph 2.d.

One Unresolved Item was identified which involved the IST requirement for valve remote position indicator verification, paragraph 2.b.

Several weaknesses were identified relating to various IST methods. These are described in paragraphs 2.a, 2.b.(2), 2.d, and 4.

A strength was identified relating to the licensee including additional pump testing data in their predictive maintenance program which exceeds Section XI requirements, paragraph 2.a.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Betsill, Acting Manager, Operations
*C. Blair, Senior QA Engineer
*E. Burkett, Project Engineering Supervisor
*R. Davis, QA Audit Supervisor
*P. Fornel, Maintenance Manager
*G. Goode, Engineering Support Manager
*J. Hammonds, Nuclear Safety and Compliance Supervisor
A. Huber, Leak Rate Test Coordinator
*K. McElroy, Licensing Engineer
*H. Nix, General Manager
*B. Syx, Senior Project Engineer
*S. Tipps, Nuclear Safety and Compliance Manager

Other licensee employees contacted during this inspection included engineers, operators, technicians, and administrative personnel.

Other Organizations

*M. Belford, Southern Company Services, Inservice Test Supervisor
*D. Swann, Southern Company Services, Inservice Test Engineer

NRC Resident Inspectors

*J. Menning, Senior Resident Inspector
*R. Musser, Resident Inspector

*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2. Core Spray System Inservice Test Program Inspection (73756)

The licensee is currently in their second 10-year IST Program for the interval from January 1, 1986, through December 31, 1996. The licensee is currently awaiting their SER and formal approval from the NRC to implement this program. The purpose of this inspection was to assess how the licensee implements the IST program as it applies to the CSS. Specific pumps, power operated valves, manual valves, check valves, and relief valves were preselected for evaluation. The inspection included, but was not limited to the following:

- Verification that the IST program is current with relief requests, FSAR commitments, and Section XI of the 1980 Edition of the ASME Code, with Winter Addenda.

- Verification that test procedures accomplish program requirements.

- Review and verification of pump and valve test results, corrective actions, and post-modification testing.

- Verification of proper accuracy and calibration for plant instrumentation and test equipment.

The inspection results have been divided into the following areas:

- Pump Testing

- Power-Operated Valve Stroke Timing and Exercising

- Check Valve Full Flow and Backflow Testing

- Relief Valve Testing

- Leak Rate Testing

a. Pump Testing

The following CSS pumps were evaluated to determine whether they were subject to the requirements of the 1980 Edition of the ASME Section XI Code, with Winter 1981 Addenda:

Core Spray Pumps	Jockey Pumps
U1-C001A	U1-C002A
U1-C001B	U1-C002B
U2-C001A	U2-C002A
U2-C001B	U2-C003A
	U2-C002B
	U2-C003B

The inspectors noted that the jockey pumps were not in the licensee's current IST Program submittal. Discussions with licensee personnel revealed that these pumps are not required to shut down the reactor or mitigate the consequences of an accident. The licensee stated that the jockey pumps provide a method of ensuring that the CSS piping is filled and vented. Monthly TS surveillances verify that this piping is full, and level switches provide signals for main control room annunciators. In addition, the licensee provided a copy of meeting minutes from an October 1987 meeting which discussed the licensee's IST Program. This documentation provided the NRC position that the Units 1 and 2 jockey pumps are not safety-related, and need not be included in the IST program. In addition, Subsection IWP-1100

of the Code provides the requirements for IST of Classes 1, 2, and 3 pumps which are provided with an emergency power source. The jockey pumps are not provided with an emergency power source, and thus the licensee stated that they are not within the scope of this Subsection. The inspectors reviewed the above documentation, and subsequently agreed that the jockey pumps are not required to be included in the IST Program. However, the purpose of these pumps is to provide a keep-fill function to minimize or prevent water hammer to the CSS, and, as such, the inspectors consider these pumps to be important to safety. Discussions with the licensee indicated that although not in the current IST Program submittal, continued pump vibrational measurements and periodic maintenance would be performed to insure these pumps can perform their intended function.

The containment spray pumps are included in the licensee's IST program. These pumps and their appropriate procedures were inspected per Section XI, Subsection IWP, requirements. Implementing procedures 34SV-E21-001-1S and 2S, Core Spray Pump Operability, and test results for the previous two refueling outages were reviewed. In general, inspection results indicated that the Section XI, Subsection IWP, requirements were satisfied in the areas of testing frequency, establishment of new reference values, post-maintenance testing, evaluation of test results, and acceptance criteria.

The inspectors also witnessed IST for Unit 2 core spray pump C001A. The inspectors observed the operators during the initial system line-up, pump testing, vibrational measurements, and testing results review. Test personnel were knowledgeable of acceptance criteria, procedural requirements, and were familiar with surveillance procedure 34SV-E21-001-2S. However, the test was delayed due to a problem with the main control room core spray pump discharge flow indicator. Prior to the test, the flow indicator was reading approximately 500 gallons per minute. Test personnel delayed the test to determine why the flow indicator was reading a positive flow prior to the test. The flow indicator was recalibrated using procedure 57CP-CAL-031-1,2. The inspectors noted that test personnel experienced difficulty in performing the calibration procedure. Specifically, calibration points at 0, 25, 50, 75, and 100 percent of the flow meter range were not specified in the procedure. Since the flow meter indication was not a linear scale, test personnel could not accurately determine where the above calibration points occurred. The inspectors reviewed previous calibration data and noted that the flow meter calibration setpoints were not consistent. The inspectors consider this inconsistency a weakness in that the licensee's calibration procedure did not specify the flow meter calibration setpoints. The licensee continued IST of the core spray pump after calibration of the flow meter was completed.

The inspectors also reviewed maintenance work orders and deficiency cards and noted that during the past two years, the main control room flow indicators (in particular 1E21-R601A) which are used to

determine core spray pump discharge flow rate had a history of recurring problems. The licensee stated that although recurring problems existed with these flow indicators, IST had not been adversely affected. Instrumentation is calibrated/repaired as needed prior to taking final test data to ensure the validity of the data. However, the inspectors consider it an isolated weakness in that the licensee has not determined the root cause for the recurring problems nor has adequate corrective action been taken to resolve problems associated with the main control room core spray pump flow indicators. During the inspection, the licensee generated Significant Occurrence Report 1-89-138 to specifically track and evaluate the root cause and corrective actions to resolve the recurring problems associated with the 1E21-R601A flow indicator.

The inspectors also reviewed maintenance work orders and deficiency cards generated during the past two years for the core spray pumps, and noted that the Unit 1 C001B pump impeller was replaced during the last refueling outage. The modification package was reviewed to verify that post-maintenance testing was performed and new reference values were established. The impeller replacement was based on recommendations as a result of vibrational measurements and analysis. Subsection IWP-4500 of the ASME Code requires at least one displacement vibration amplitude to be taken during each inservice test. However, displacement vibration amplitude measurements may not provide indications of pump degradation. As such, the licensee takes velocity vibrational measurements for the core spray pumps (as well as other pumps such as jockey pumps) as part of their predictive maintenance program. Analysis and trending of velocity measurements, and comparison of these values with measurements and frequencies based on discussions with vendors, provides the licensee with a more realistic indication of pump degradation. The licensee's predictive maintenance activities in the area of pump vibrational measurements are in excess of that which is required by Subsection IWP of the ASME Code. These activities are also effective in determining pump degradation, and are considered a strength. The impeller replacement also resulted in slightly different pump head curves, which the licensee evaluated to ensure design requirements were satisfied, new reference values were indicative of acceptable pump operation, and sufficient net positive suction head was available.

b. Power Operated Valve Stroke Timing and Exercising

The inspectors reviewed the licensee's inservice testing for the following power operated and manual valves from the Unit 1 and Unit 2 CSS:

*U1,U2-F001A & B	*U1,U2-F031A & B	U2-F051A & B
*U1,U2-F004A & B	*U1,U2-F037A & B	U1-F062A & B
*U1,U2-F005A & B	U2-F038A & B	U1-F066A & B
U1,U2-F007A & B	U2-F041A & B	U1-F069A & B
*U1,U2-F015A & B	U2-F042A & B	U1-F070A & B
U1,U2-F019A & B	U2-F047A & B	

The requirements for IST for the above valves annotated with an asterisk are contained in the licensee's IST Program for pumps and valves.

ASME Code, Section XI, Subsection IWV-1100, provides the scope requirements for IST of certain Classes 1, 2, and 3 valves which are required to perform a specific function in shutting down a reactor to cold shutdown or in mitigating the consequences of an accident. Using plant CSS drawings, the inspectors verified that the licensee's IST Program contained all Classes 1, 2, and 3 valves required by Subsection IWV-1100. The inspectors and the licensee discussed the basis for not including valves F019A and B in their program. These are air-operated butterfly valves located in the core spray pump suction lines, close to the suppression pool. The licensee reported that these valves are considered to be passive valves, in that no change in position is required to accomplish their specific function. The valves are normally open and fail in the open position. This was considered acceptable, per the requirements of Section XI. The inspector also noted that the licensee's program specified valves F037A and B to be exercised and stroke timed during cold shutdown conditions instead of quarterly per the frequency required by Section XI. These are one-inch, air-operated plug valves which bypass the inside containment injection check valves. The licensee reported that these valves cannot be opened during normal operation since the low pressure piping of the CSS could become over pressurized. This was determined to be acceptable.

The inspectors reviewed the licensee's Inservice Valve Test Plan, which provides a summary of the IST requirements of all Section XI valves. The Plan provides a description of each valve tested, leakage criteria, limiting full-stroke times, exercise tests, plant procedures in which these tests are performed, and corrective actions if test results are not satisfactory. Some differences were noted between the licensee's IST Program and Plan documents regarding the test requirements for valves F037A and B. The licensee explained that these valves were added to the IST Program as a result of the meeting between GPC and NRC, conducted on October 21-22, 1987. The licensee has not received an SER from the NRC approving their IST Program. At the October meeting, the licensee committed to fully implement their IST Program nine months after issuance of the SER. The licensee plans to revise their IST Plan and surveillance procedures to include these valves after SER issuance.

Requirements for valve exercising and stroke timing are located in Section XI, Subsections IWV-3412 and IWV-3413. For Categories A and B valves, the required intervals for valve exercising and stroke timing are specified as once every 3 months. Subsection IWV-3417 also requires increased stroke time frequencies as corrective action for

valves that fail to meet their full-stroke time acceptance criteria or degrade significantly from previous stroke time values. The inspectors interviewed licensee personnel regarding the general methods used during valve stroke time testing, and reviewed the following surveillance procedures which implement the IST Program for the above CSS valves:

34SV-E21-002-1S, Core Spray Operability, Revision 5

34SV-E21-002-2S, Core Spray Operability, Revision 3

Valve stroke time results from the above procedures were reviewed since early 1986 to ensure that valves were tested in accordance with Section XI. During this time, none of the valves for either Unit had exceeded their limiting stroke time. However, the following discrepancies or problems were identified and discussed with the licensee:

(1) On November 17, 1987, the licensee performed their scheduled Unit 2 IST stroke time test. Shortly thereafter, valve maintenance was conducted on valves F001B, F004B, and F005B. After maintenance, these valves were stroke time tested on November 24, 1987. The next scheduled IST stroke time test for all the core spray valves was performed on February 28, 1988. However, for this test, the licensee failed to use the correct reference stroke time for the above three valves. Instead of using the reestablished reference stroke time obtained from the November 24 test, the licensee used results from the November 17 test. The licensee reported that their interpretation of Subsection IWV-3417 was to use reference stroke time results from the past 3-month inservice test. This interpretation is not valid, in that, the valve's characteristics were altered after the maintenance was performed prior to their being tested on February 28, 1988. At this time, new baseline data was required to be used but was not. This is identified as example A of violation 321, 366/89-19-01, Failure to Adequately Implement and/or Perform Inservice Testing.

(2) Units 1 and 2 surveillance procedures 34SV-E21-002-1S,2S were revised, respectively, in December and August 1988. The revised procedures were much improved from the previous version with regard to the detail of instruction and the structure of tables for recording and analyzing stroke time results. No discrepancies were identified in test records using the new procedures; however, several errors in recording stroke time data were found in older stroke time tests. It was verified that these errors did not affect valve stroke time corrective action. The inspectors considered that the valve recording errors made were of such a nature that test data reviewers should have discovered them. At the exit meeting, the inspectors addressed this matter as a weakness in the licensee's review process.

(3) The Unit 2 valve stroke time test conducted on August 19, 1988, was not signed-off and dated as having been reviewed by the IST Pump and Valve Engineer or by the on-site Authorized Nuclear Inservice Inspector representative. Upon licensee notification, the licensee initiated a deficiency report documenting the discrepancy. The licensee explained that apparently the completed surveillance procedure was sent to Document Control by mistake before review by the ISI Department. This incident will be corrected by the licensee's deficiency system.

The following Maintenance Work Orders (MWOs) were reviewed for selected valves included in the licensee's IST Program:

MWO	Valve Number
18704620	U1-F003B
18900275	U1-F004A
18603194	U1-F004A
18704377	U1-F005B
18609331	U1-F005B
18901478	U1-F015A
18700004	U1-F015A
18604949	U1-F015A
18901479	U1-F015B
18705192	U1-F015B
18700005	U1-F015B
18604989	U1-F015B
18706990	U1-F031A
18603656	U1-F031A
18603468	U1-F031A

Section XI, Subsection IWV-3200, of the ASME Code provides the requirements for post-maintenance testing to demonstrate that the performance parameters which could be affected by replacement, repair, or maintenance are within acceptable limits. The inspectors confirmed that adequate post-maintenance testing had been performed.

The inspectors reviewed the licensee's basis for the specified limiting value for full-stroke times as required by Section XI, Subsection IWV-3413, and Generic Letter 89-04. The inspectors did not note any CSS valves in which the specified limiting stroke time was an unacceptable deviation from the reference value, or was greater than TS limits.

The inspectors also reviewed the licensee's testing methods for verifying remote position indication for valves in the IST Program. Section XI, Subsection IWV-3300, of the ASME Code states that valves with remote position indicators shall be observed at least once every

two years to verify that valve operation is accurately indicated. Licensee procedures for IST verify accurate valve position indication at a remote location, specifically the main control room. However, remote position indicators are also located on the remote shutdown panels. The remote shutdown system provides the capability to bring the plant to a safe shutdown. Control and indication for components needed for safe shutdown are provided on the shutdown panels, and include status lights for valve position. The licensee currently does not verify correct valve position indication at the remote shutdown panels for valves in the IST Program. Further, the licensee's position was that the intent of Subsection IWV-3300 was to verify remote position indicators only at the location used to stroke time the valve. A letter was also provided by the licensee, dated November 14, 1988, from the ASME Boiler and Pressure Vessel Committee to Commonwealth Edison Power Company, which appeared to support this position. Pending further NRC review, this matter was identified as Unresolved Item 321, 366/89-19-02, Resolve IST Requirement For Valve Position Indicator Verification.

c. Check Valve Full Flow and Backflow Testing

The inspectors reviewed the full stroke and backflow IST method and results obtained during the previous two year period for the following CSS check valves:

Unit 1	Unit 2
E21-F003A,B	E21-F003A,B
E21-F006A,B	E21-F006A,B
E21-F036A,B	E21-F036A,B
E21-F044A,B	E21-F044A,B
E21-F065A,B	E21-F050A,B
E21-F071A,B	E21-F052A,B
E21-F039A,B	E21-F-53A,B
E21-F040A,B	E21-F039A,B
E21-F033A,B	E21-F040A,B
	E21-F033A,B

The inspectors reviewed the following procedures that performed IST on the above CSS check valves.

34SV-E21-002-1S,2S, Core Spray Pump Operability
42SV-SUV-040-1S,2S, Check Valve Internal Inspections
42SV-TET-001-1S,2S, Primary Containment Periodic Type B and C Leakage Tests

ASME Section XI, 1980 Edition, Winter 1981 Addenda, Pump and Valve Test Plan

Inservice Inspection Program 1980 Edition of ASME Section XI with Addenda through Winter 1981, Second Ten Year Interval.

Unit 1 stop-check valves E21-F044A and B are located in the respective jockey pump minimum flow recirculation line. These valves have a function to prevent backflow from the torus to the jockey pump system in the event the containment is pressurized during an accident. The licensee's IST Program requires that these valves be reverse flow tested each RFO per Procedure 42SV-TET-001-1S. Review of the test results obtained per this procedure during the Unit 1 1988 RFO indicated that stop check valves E21-F044A and B were not reverse flow tested. The failure to reverse flow test these valves appeared to be due to a change issued to the IST program just prior to the start of the Unit 1 RFO which required the valves to be reverse flow tested with water as a test medium in lieu of air. After issuance of the IST program change, procedure 42SV-TET-001-1S was revised to delete reverse flow testing the valves with air but was not revised to test the valves with water. Additional review by the inspectors revealed that other Unit 1 check valves not in the CSS were similar to valves E21-F044A and B, in that, reverse flow testing was not performed as required by the licensee's IST program during the 1988 RFO. These additional valves were E41-F046, HPCI pump minimum flow recirculation, and E51-F021, RCIC pump minimum flow recirculation. Failure to reverse flow test these check valves E21-F044A and B, E41-F046, and E51-F021 in accordance with the IST program is identified as example B of violation 50-321/89-19-01. The inspectors verified that the comparable Unit 2 check valves were reverse flow tested during the previous RFO.

With the exception of reverse flow testing Unit 1 valves E21-F044A and B, E41-F046, and E51-F021, the inspectors considered that the licensee's IST program in the area of the CSS check valves meets ASME Section XI requirements. The inspectors also verified that all test data was obtained from instruments that were routinely calibrated.

d. Relief Valve Testing

The inspectors reviewed the IST setpoint test methods and results dating back to 1986 for Units 1 and 2 relief valves E21-F012A and B. These valves were setpoint tested per Procedures 42SV-SUV-004-1S,2S, Safety Relief Valve IST Test.

Relief valves are grouped in accordance with valve size, manufacturer, and function. Unit 2 relief valves E21-F012A and B have been grouped by the licensee to comprise one category of IST relief valves. Unit 2 relief valve E21-F012B was setpoint tested during the 1988 RFO, and because the valve failed, Unit 2 relief valve E21-F012A was also setpoint tested during the 1988 RFO. Since both valves were tested during the 1988 RFO, the licensee has scheduled the next setpoint testing to be accomplished 60 months later.

The inspectors also reviewed the test results of 10 Unit 1 RHR valves that have been grouped by the licensee to comprise another category of IST relief valves. The RHR relief valves were E11-F025A and B, E11-F029, E11-F030A, B, C, and D, E11-F005A and B, and E11-F097. None of these valves were setpoint tested during the Unit 1 1988 RFO but they were all tested during the previous RFO.

IWV-3500, subsequent subsections, and Table IWV-3510-1 require that each RFO, a portion of these valves be tested based on the number of months since the initial startup for the 60 month cycle and the total valves in a category. If any valve fails, then additional valves must be tested, and if one of these additional valves fail, then all the valves in the group are required to be tested. The licensee's IST program requirement for scheduling relief valve setpoint tests every five years for valves E21-F012A and B and not testing a sample of RHR valves during the Unit 1 1988 RFO does not meet the test frequency requirements of IWV-3500 and is identified as Example C of Violation 321,366/89-19-01.

A weakness was identified in the IST relief valve setpoint program that involved the test medium utilized to setpoint test relief valves. Procedure 42SV-SUV-004-1S,2S allows the use of nitrogen or water to setpoint test relief valves. Per discussion with licensee maintenance personnel nitrogen is normally used to setpoint test relief valves; however, water was sometimes used. The licensee is required to setpoint relief valves per ANSI/ASME PTC 25.3-1976, Safety and Relief Valves. Paragraph 4.09 of PTC 25.3-1976 recommends that liquid valves be tested with liquid and compressible-fluid valves be tested with a compressible fluid. The relief valves reviewed by the inspectors were liquid valves being tested by the licensee with nitrogen which is not per PTC 25.3-1976 recommendations.

e. Leak Rate Testing

Leak rate testing on valves in the core spray system was reviewed for conformance with ASME Section XI, Subsection IWV, and the IST program. Valves considered in this review included:

U1,U2 E21-F001A & B
U1,U2 E21-F005A & B
U1,U2 E21-F006A & B
U1,U2 E21-F015A & B
U1,U2 E21-F019A & B
U1,U2 E21-F036A & B
U1,U2 E21-F037A & B
U1,U2 E21-F044A & B

With the exception of F019A and B, the above valves are identified in the IST program as Category A valves requiring leak rate testing per IWV-2200. F019 is not considered to be a containment isolation valve.

The IST Plan which implements the IST program differs slightly from the Program in that F001A and B, F015A and B and F044A and B have been removed from the Category A valves and no longer require leak rate testing in Unit 1. Justification for removing these valves from Category A testing is based on an exemption from Appendix J to 10 CFR Part 50, Type C testing. The valves are considered water sealed containment isolation valves which do not require Type C leak rate testing. The licensee has written a deviation to the IST program to implement these changes. These same changes are currently under review for Unit 2.

The inspectors reviewed plant drawings for the core spray and jockey pump systems and concluded that within the current IST program and plan the changes are consistent with the scope of Section XI, Subsection IWV requirements. The procedures which implement the IST leak rate testing are 42SV-TET-001-1S, Revision 7, and 42SV-TET-001-2S, Revision 3, "Primary Containment Periodic Type B and Type C Leakage Tests," for Units 1 and 2, respectively.

The procedures specify the frequency, test medium, valve line ups, and acceptance limits stated in the IST program for the leak rate tests. The procedures include three attachments, Type B tests, Type C tests, and ASME tests. The Type C tests are performed per the requirements of Appendix J using air as the test medium.

The ASME tests are performed per the requirements of ASME Section XI, Subsection IWV, using water as a test medium. Reduced pressure test results at Pa are extrapolated to system functional differential pressure (1135 psid) by the square root of the ratio of system pressure to test pressure as required by IWV-3423. When air at Pa is the test medium for pressure isolation valves, the licensee assumes that the actual cubic centimeters of air measured is water and then extrapolates the leak rate to system functional differential pressure in terms of water leakage for comparison with IST limits. In actual practice the IST leakage limit has been precalculated from 60 psig so that a direct comparison between limit and test result can be made promptly.

The inspector reviewed the test data for Unit 1 and Unit 2 for the previous two refueling outages for the following valves:

F001A and B	-	Considered a water sealed valve not requiring leak test. Was performed in 1987 and deleted in 1988 on Unit 1. Will be deleted on Unit 2 at the next refueling outage.
F005A and B	-	No comment.
F006A and B	-	No comment.

F015A and B	-	Same comment as F001.
F036A and B	-	Not testable - relief request RR-V-21 has been submitted. This is acceptable until the final SER is issued.
F037A and B	-	F006 and F037 are tested jointly. Valves are in parallel.
F044A and B	-	Same comment as F001.

Review of these data indicate the following:

Tests were performed within the 2 year time interval.

Measured leakage was compared to precalculated acceptance limits for test pressure of Pa.

Where a valve failed to meet the acceptance limit or the reduced margin criteria of IWV-3437, the valve was repaired and successfully retested. The licensee has elected to not apply the reduced margin and associated increased test frequency criteria. Where test results would require application of these criteria the valve is repaired and retested prior to return to service.

Trending valve leak rates is not performed. The licensee has submitted relief request RR-V-37 on this subject. This is acceptable until the final SER is issued.

The inspector concluded that the licensee is performing leak rate testing within the scope of ASME Section XI and the interim IST program.

In review of core spray system the inspector identified two IFIs which were discussed with licensee personnel.

The first IFI relates to an exemption to 10 CFR Part 50, Appendix J, for the core spray line suction valve to the torus (E21-F001A and B). The licensee was exempted from testing these valves on the basis they will always be covered by torus water. If the design function of the F001 is only to prevent containment atmosphere from escaping, then the torus water provides a leakage barrier. However, if the design function also includes the prevention of loss of torus water then a test with appropriate limits should be periodically performed to verify that the valve can fulfill its intended function. The inspector identified this matter as IFI 321, 366/89-19-03 at the exit interview as follows:

Review the licensee's determination of the design function of the core spray torus suction valves E21-F001A and B.

The second IFI identified during this review is related to the concept of a closed system outside containment. The core spray system piping is considered a leakage barrier. Therefore, only one isolation valve F005 is provided. The licensee considers that the closed system concept encompasses all branch lines from the core spray line. However, a two inch line from the condensate storage tank to the core spray discharge line was identified. This line is safety class, Seismic I, for some length and then becomes a nonsafety class, non-seismic line. There are valves in the seismic portion of the line but no verification of leak tightness is performed. The inspector considers this two inch line to be a potential leak path. This matter was identified as an IFI 321, 366/89-19-04 at the exit interview as follows:

Review the licensee's evaluation on the validity of the two inch line from the condensate storage tank to the core spray line as a leakage barrier.

Within the areas inspected, three examples of one violation, one URI, two IFIs, one strength, and four weaknesses were identified.

3. Reportable Occurrences (90712, 92700)

a. (Closed) LER 50-321/87-09: Failure of Primary Containment Type B and C Leakage Tests

On April 27, 1987, with the plant in a cold shutdown condition, plant personnel were performing leak rate testing on primary containment penetration boundaries and determined that some of the penetrations would not meet the leakage requirements allowed by plant procedures and TS. This LER was initiated by the licensee because of the potential loss of containment integrity. Further testing during the refueling outage resulted in leak rate failures in some 40 penetrations. The licensee attributed the cause of the unacceptable leakage rates to normal use and wear.

The inspectors reviewed leak rate test records of the failed penetrations to determine that the reportability requirements were fulfilled and that appropriate corrective action was accomplished. Individual valve failure determinations conducted by the licensee showed that the majority of the failures was due to dirty valve internals and corroded, pitted, or worn valve seats and discs. The inspectors verified that retests were performed after valve maintenance and repair. The individual and total "as-left" leakages were found to be within required limits. Based on this review, the inspectors had no further concerns regarding this matter.

b. (Closed) LER 50-366/88-04: Primary Containment Penetrations Fail Local Leak Rate Tests (LLRT) Due to Normal Equipment Wear

This LER involved a potential loss of containment integrity function in that several containment penetrations were leaking in excess of the limits specified in the Unit 2 Technical Specifications and 10 CFR Part 50, Appendix J, requirements. The licensee identified the root cause as normal equipment use and wear, and did not consider problems to be generic. The inspectors verified that necessary maintenance, repairs, and corrective actions were taken by the licensee, and post-maintenance LLRT was performed with acceptable results. The licensee's actions were considered adequate.

No violations or deviations were identified.

4. Followup on NRC Bulletin 85-03 (92701)

(Closed) 85-BU-03, T2515/73: Motor Operated Valve Common Mode Failure During Plant Transients Due to Improper Switch Settings

The purpose of this Bulletin is to require licensees to develop and implement a program to ensure that switch settings for high pressure coolant injection and emergency feedwater system MOVs subject to testing for operational readiness in accordance with 10 CFR 50.55a(g) are properly set, selected, and maintained.

NRC Inspection Report 50-321,366/88-08 identified several Bulletin 85-03 weaknesses and outstanding action items. With the exception of differential pressure testing, all Bulletin 85-03 outstanding items have been completed and previous weaknesses corrected. In a letter dated January 4, 1989, from Georgia Power Company to NRC, justification for not differential pressure testing many of the Bulletin 85-03 valves was provided. Of the 47 valves in the Bulletin 85-03 program, 6 were operated at differential pressure to verify operability. Justification for not differential pressure testing included; as-left torque switch settings were above calculated thrust requirements, open torque switch settings were jumpered out so full actuator capability was applied, and valves are inaccessible during conditions (such as normal operation) when full differential pressure could be achieved. This justification does not provide an adequate alternative to differential pressure testing valves exposed to high differential pressures. Not differential pressure testing or providing an adequate alternative for valves exposed to high differential pressures is considered a weakness in the licensee's Bulletin 85-03 program. Since Generic Letter 89-10, Safety-Related Motor-Operated Valve Testing And Surveillance, supersedes Bulletin 85-03, requirements, these weaknesses will be reviewed during subsequent Generic Letter inspections.

No violations or deviations were identified.

5. Action on Previous Inspection Findings (92701, 92702)

a. (Closed) IFI 50-321/86-13-01: Review CILRT Report and Determine Pass/fail Status of "As-found" Leak Rate

This item concerned inclusion of an adequate analysis of the containment "as-found" leak rate in the containment integrated leak rate test CILRT report. The inspector reviewed the Reactor Containment Building Integrated Leak Rate Test Reports for the Unit 1 CILRT performed April 1986 and the Unit 2 CILRT performed November 1986. An adequate analysis of the containment "as-found" leak rate was included in each of the test reports.

b. (Closed) IFIs 50-321/86-13-03 and 50-366/86-13-01: Review Licensee's Evalaution of Local Leak Rate Test Program And Any Corrective Actions Required.

These related to the licensee's commitment to evaluate the local leak rate LLRT program to ensure that all potential leakage paths are identified and properly tested. From discussion with site personnel and review of an engineering study (REA-HT-6678) performed by Southern Company Services, Inc., the inspector determined that a program evaluation has been performed. Additionally, site personnel performed visual inspections to confirm valve orientation and to identify potential leakage paths. A major revision to the test procedure 42SV-TET-001 for both Units 1 and 2 is a result of this evaluation.

c. (Closed) Violation 50-366/86-39-01: Failure to Determine the Change in Leak Rate due to Repairs or Adjustments to the Containment Boundary Prior to Type A Test Renders Calculation of As-Is Leak Rate Indeterminable.

This item concerned the failure to measure the change in leakage rate due to repairs to the containment boundary prior to the Type A test in order to determine the "as-found" overall containment leak rate. In the response to the violation, dated March 9, 1987, the licensee identified the root cause of the violation as inadequate controls in the administrative procedure which controls plant maintenance via the Maintenance Work Order (MWO) system and committed to revising the maintenance program procedure 50-AC-MNT-001-0S. The inspector reviewed the Maintenance Program procedure 50-AC-MNT-001-0S, Revision 10, to ensure that adequate controls are now specified for the performance of "as-found" and "as-left" local leak rate testing. The procedures now require that the planning and controls (P&C) group have any MWO associated with a component requiring local leak rate testing reviewed by the LLRT coordinator prior to the performance of any maintenance. A "LLRT Component" form is attached to the MWO

which requires sign-off by the LLRT coordinator or his designee. The inspector reviewed two MWOs for components requiring local leak rate tests and found that these forms were attached and signed off. The inspector concluded the licensee has met the commitments in the response to the Notice of Violation.

d. (Closed) IFI 50-366/86-39-02: Review Action to Identify And Test Pressure Restraining Seals in Containment Boundary.

This item concerns the failure to include a containment boundary seal in the LLRT program. The engineering study discussed in Item i was expanded to include this concern. The boundary seal is now tested in the LLRT test for the hydrogen recombiner system.

e. (Closed) IFI 50-321,366/87-01-02: Review of Test Requirements for Dual Function Check Valves

This item involved testing check valves which also have a safety function in the closed position in limiting or preventing reverse flow. Generic Letter 89-04, Guidance on Developing Acceptable Inservice Testing Programs, provides the NRC staff position that check valve disassembly and inspection can be used as a positive means of determining that a valve's disk will full-stroke exercise open, or verifying closure capability. The licensee revised Surveillance Procedure 42SV-SUV-040-1S,2S, Check Valve Internals Inspection, Rev. 3, which performs disassembly and visual inspection of certain check valves to determine acceptability. The licensee's actions to address this issue were satisfactory.

f. (Closed) URI 50-366/88-00-01, Timing MSIV Closure Methods

This item involves timing MSIVs from light to light. The licensee has changed procedure 34SV-B31-002-2S, MSIV Timing, to time from switch actuation to the closed indication light.

g. (Closed) IFI 50-321,366/88-23-01: Revise Startup Test Procedures to Include Cold Critical Eigenvalue Comparison and Recording of APRM Calibrations

A previous inspection identified two minor weaknesses in Units 1 and 2 startup test procedures. The licensee made a commitment to resolve the differences between the startup test procedures and the startup program described in a letter to the NRC dated December 29, 1987. This letter included requirements for comparison of cold critical eigenvalues and recording APRM calibrations as part of the startup procedures. The purpose of the cold critical eigenvalue comparison is to provide benchmark or validation data for predicted cold critical eigenvalue calculations.

The inspectors reviewed revised procedures 42FH-ENG-024-1S, Startup Testing, Revision 1, and 42FH-ENG-024-2S, Revision 1, and determined that the licensee had included a section that addressed the cold critical eigenvalue comparison. The procedure documents that the applicable data is sent to the licensee's fuel vendor for the required validation analysis. In addition, the revised procedures included a signoff on data packages documenting that the APRM calibration required during beginning-of-cycle startup are completed. Based on this review, the inspectors had no further concerns regarding this matter.

6. Exit Interview

The inspection scope and results were summarized on August 25, 1989, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed below. Proprietary information is not contained in this report. Dissenting comments were not received from the licensee; however, the licensee did question the inspection interperation of Section XI requirements relating to relief valve testing and remote valve position indication.

Item Number	Description and Reference
321, 366/89-19-01	Violation - Failure to adequately implement and/or perform inservice testing program, paragraph 2.b.(1), 2.c, and 2.d.
321, 366/89-19-02	URI - Resolve inservice test requirement for valve remote position indicator verification, paragraph 2.b.
321, 366/89-19-03	IFI - Review the licensee's determination of the design functioning of the core spray torus suction valves E21-F001 A and B, paragraph 2.e.
321, 366/89-19-04	IFI - Review the licensee's evaluation on the validity of the two inch line from the condensate storage tank to the core spray line as a leakage barrier, paragraph 2.e.

A strength presented in paragraph 2.a and the weaknesses presented in paragraphs 2.a, 2.b.(2), 2.d, and 4 were also discussed.

7. Acronyms and Initialisms Used In This Report

APRM	-	Average Power Range Monitor
ASME	-	American Society of Mechanical Engineers
CILRT		Containment Integrated Leak Rate Test
CSS	-	Core Spray System
FSAR	-	Final Safety Analysis Report
GPC	-	Georgia Power Company
HPCI	-	High Pressure Core Injection
IFI	-	Inspector Followup Item
IST	-	Inservice Testing
LER	-	Licensee Event Report
MSIV	-	Main Steam Isolation Valve
Pa	-	Calculated Peak Containment Internal Pressure
QA	-	Quality Assurance
RFO	-	Refueling Outage
RCIC	-	Reactor Core Isolation Cooling
RHR	-	Residual Heat Removal
SER	-	Safety Evaluation Report
TS	-	Technical Specifications
URI	-	Unresolved Item