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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO THE FIRST TEN-YEAR INTERVAL INSERVICE

INSPECTION PROGRAM PLAN

GULF STATES UTILITIES COMPANY

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

INTRODUCTION

By letter dated April 22, 1988, and additional changes submitted by letter dated June 12, 1990, Gulf States Utilities Company (GSU) (the licensee) submitted the River Bend Station, Unit 1 (RBS) first ten-year interval Inservice Testing (IST) program to meet the requirements of the 1980 Edition through the Winter 1981 Addenda of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The staff, with technical assistance from its contractor, Idaho National Engineering Laboratory, EG&G Idaho, Inc. (EG&G), has evaluated the first ten-year interval IST program plans, and the requests for relief form certain ASME Code requirements determined to be impractical for RBS during the first inspection interval.

Technical Specification 4.0.5 for the RBS states that the surveillance requirements for IST of the ASME Boiler and Pressure Vessel Code Class 1, 2, and 3 components shall be applicable as follows: IST of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i).

Pursuant to 10 CFR 50.55a(g), IST of ASME Code Class 1, 2, and 3 pumps and valves shall 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 50.55a(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.

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 or impose alternative requirements that are determined to be authorized by law, will not endanger life or property or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed. 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 first ten-year inspection interval from June 16, 1986 to June 16, 1996. The licensee's program includes pump and valve IST program, Revision 5, as described in a letter dated April 22, 1988, which superseded all previous submittals. Additional changes submitted by a letter dated June 12, 1990, as Revision 5A, are also included in this review.

EVALUATION

The IST program and the request for relief from the requirements of Section XI have been reviewed by the staff with the assistance of its contractor, EG&G. In addition, EG&G staff members met with licensee representatives on December 15 and 16, 1987, in a working session to discuss questions resulting from the review. The Technical Evaluation Report (TER) provided as Attachment 2, 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 commitments made by the licensee in its basis for each relief request and the alternative proposed testing.

Three relief requests were denied (TER Sections 2.1.5.1, 3.6.1.1, and 3.8.3.2). Sixteen relief requests were granted with certain conditions (TER Sections 2.1.1.1, 2.1.2.1, 2.1.4.1, 2.2.1.1, 2.3.1.1, 2.4.1.1, 3.1.2.1, 3.1.4.1, 3.1.4.3, 3.1.4.5, 3.3.1.1, 3.7.1.2, 3.10.1.2, 3.18.1.1, 3.20.1.1, and 3.20.1.2). Five relief requests were approved on an interim basis (TER Sections 2.1.3.1, 2.2.3.1, 2.4.2.1, 3.1.4.2, and 3.1.4.4). The licensee should refer to the specific TER section for a detailed discussion of these cases. These denials and conditions are listed in Appendix B of the TER, which also lists other IST program anomalies identified during the review. These anomalies include the denial of four cold shutdown justification relief requests and a number of editorial changes.

The licensee should resolve all the items listed in Appendix B in accordance with the staff guidance therein. Program/procedural changes covered by items 1-5, 8, 10, 12, 14, and 16-26, in Appendix B should be made within six months of receipt of this SE. Items 6, 13, and 15 in Appendix B should be resolved within six months of receipt of this SE. Items 7 and 9 in Appendix B should be resolved within one year of receipt of this SE or the next refueling outage, whichever is longer. Item 11 should be actively pursued and if alternate testing methods are developed, the affected relief request should be revised or withdrawn.

CONCLUSION

Based on the review of the licensee's IST program 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 Appendix B of the TER. The IST program relief requests for River Bend Station provided by submittal dated April 22, 1988, along with additional information provided by a submittal dated June 12, 1990, are acceptable for implementation provided that the items noted above are corrected promptly. New or revised relief requests contained in any subsequent revisions may not be implemented without prior approval by NRC, unless they are relief requests meeting the positions in Enclosure 1 of Generic Letter 89-04.

Principal Contributor: A. Keller, MEB

Attachments:
1. Table 1
2. EG&G TER EGG-NTA-8288

RIVER BEND STATION, UNIT 1
SER TABLE 1
SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Pump PRR-1	2.1.4.1	Table IWP-3100 Note 1, Measure idle inlet pressure	All pumps in program	Do not stop operating pump for inlet pressure measurement.	Relief Granted 10 CFR 50.55a (a)(3)(ii) provided measurement made for pumps stopped during quarter.
Pump PRR-2	2.1.5.1	IWP-3230 & Table IWP-3100-2 Acceptance criteria and time to analyze test data	All pumps in program	Utilize ANSI/ASME OM-6, Draft 8, acceptance criteria, analyze data within hours of test.	Relief Denied
Pump PRR-3	2.2.3.1	IWP-3400(a) Test frequency	Standby liquid control pumps, IC41-PC001A and -PC001B	Test during cold shutdowns if not tested within 92 days.	Interim Relief Granted (a)(3)(i) for 6 months.
Pump PRR-4	2.1.3.1	IWP-4120 Instrument full-scale range	All pumps in program except standby service water and diesel generator fuel oil transfer pumps	Utilize wider range instruments for inlet pressure.	Interim Relief Granted (a)(3)(i) for one year or until the next refueling outage.
Pump PRR-5	2.1.2.1	IWP-4510 Measure vibration amplitude	All pumps in program	Measure vibration velocity and ensure within IST program limits.	Relief Granted (a)(3)(i) provided the licensee complies with all OM-6 vibration test requirements.
Pump PRR-7	2.2.2.1	IWP-4240 Measure differential pressure	Standby liquid control pumps, IC41-PC001A and -PC001B	Evaluate pump discharge pressure.	Relief Granted (a)(3)(i)

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SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Pump PRR-8	2.3.1.1	Table IWP-3100-1 Note 1, Measure inlet pressure	Standby service water pumps, 1SWP-P2A, -P2B, -P2C, -P2D	Calculate inlet pressure based on tank level.	Relief Granted (g)(6)(i) provided accuracy requirements of Table IWP-4110-1 met.
Pump PRR-8	2.4.1.1	Table IWP-3100-1 Note 1, Measure inlet pressure	Diesel generator fuel oil transfer pumps, 1EGF-P1A, -P1B, -P1C	Calculate inlet pressure based on tank level.	Relief Granted (g)(6)(i) provided accuracy requirements of Table IWP-4110-1 met.
Pump PRR-9	2.4.2.1	Table IWP-4510 Vibration measurements	Diesel generator fuel oil transfer pumps, 1EGF-P1A, -P1B, -P1C	No alternate proposed.	Interim Relief Granted (g)(6)(i) for 1 year or until next refueling outage.
Pump PRR-10	2.1.1.1	IWP-3300 Measure bearing temperature	All pumps in program	Measure vibration velocity.	Relief Granted (a)(3)(i) provided the licensee complies with all OM-6 vibration test requirements.
Pump PRR-11	2.2.1.1	IWP-4600 Measure flow rate	Standby liquid control pumps, 1C41-PC001A and -PC001B	Calculate pump flow rate.	Relief Granted (g)(6)(i) provided accuracy requirements of Table IWP-4110-1 met.
Valve VRR2	3.3.1.1	IWV-3521 Test frequency	1B33-VF013A & B 1B33-VF017A & B reactor recirculation pump seal injection checks	Verify closure during drywell bypass leakage test each refueling outage.	Relief Granted (g)(6)(i) provided valves leak tested in pairs per IWV-3420.
Valve VRR2	3.7.1.2	IWV-3521 Test frequency	1CCP-V119 reactor plant closed cooling water drywell supply check	Verify closure during drywell bypass leakage test each refueling outage.	Relief Granted (g)(6)(i) provided valves leak tested per IWV-3420.

RIVER BEND STATION, UNIT 1
SER TABLE 1
SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VRR2	3.10.1.2	IWV-3521 Test frequency	1IAS-V78 drywell instrument air supply check	Verify closure during drywell bypass leakage test each refueling outage.	Relief Granted (g)(6)(i) provided valves leak tested per IWV-3420.
Valve VRR2	3.18.1.1	IWV-3521 Test frequency	1CMS-V40 and -V41, drywell atmosphere sample return checks	Verify closure during drywell bypass leakage test each refueling outage.	Relief Granted (g)(6)(i) provided valves leak tested per IWV-3420.
Valve VRR2	3.20.1.1	IWV-3521 Test frequency	1DFR-V1 thru -V4, drywell floor drain sump inlet checks	Verify closure during drywell bypass leakage test each refueling outage.	Relief Granted (g)(6)(i) provided valves leak tested in pairs per IWV-3420.
Valve VRR2	3.20.1.2	IWV-3521 Test frequency	1DFR-V14, -V15, -V16, -V17, drywell equipment drain sump inlet checks	Verify closure during drywell bypass leakage test each refueling outage.	Relief Granted (g)(6)(i) provided valves leak tested in pairs per IWV-3420.
Valve VRR4	3.14.1.1	IWV-3521 Test frequency	MSIV and penetration valve leakage control system checks	Full-stroke exercise during refueling outages.	Relief Granted (g)(6)(i)
Valve VRR9	3.6.1.1	IWV-3521 Test frequency	1SVV-9 and V31 main steam safety/relief valve accumulator instrument air supply isolation checks	Verify closure during leak testing each refueling outage.	Relief Denied
Valve VRR9	3.6.3.2	IWV-3521 Test frequency	ADS safety/relief valve accumulator air supply checks	Full-stroke exercise during refueling outages.	Relief Granted (g)(6)(i)

RIVER BEND STATION, UNIT 1
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SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VRR10	3.1.1.1	IWV-3417(a) Stroke time trending	All power operated valves except solenoid operated and testable check valves	Ensure stroke time values within limits based on baseline tests.	Relief Granted (a)(3)(i)
Valve VRR11	3.8.2.1	IWV-3411 Test frequency	1SWP-MOV503A and -MOV503B, ventilation chilled water return and service water cross connection	Full-stroke exercise and stroke time each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR11	3.8.3.1	IWV-3411 Test frequency	1SWP-MOV510A & B, 502A & B, & 504A & B reactor plant CCW/SW supply cross connect valves	Full-stroke exercise and stroke time each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR11	3.8.4.2	IWV-3521 Test frequency	1SWP-V203 & V204, ventilation chilled water service water cross connection checks	Full-stroke exercise each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR13	3.11.1.1	IWV-3521 Test frequency	1C41-VF006 & VF007, standby liquid control injection checks	Full-stroke exercise each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR20	3.12.2.1	IWV-3521 Test frequency	1E12-VF050A and -VF050B, shutdown cooling return checks	Exercise open each cold shutdown and verify closure each refueling outage.	Relief Granted (g)(6)(i) to verify open each cold shutdown and closure each refueling outage.

RIVER BEND STATION, UNIT 1
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SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VRR22	3.6.2.1	IWV-3411 Test frequency	All main steam safety/relief valves	Full-stroke exercise during refueling outages.	Relief Granted (a)(3)(i)
Valve VRR23	3.12.1.1	IWV-3521 Test frequency	1RHS-V240 residual heat removal shutdown cooling suction thermal relief check	Full-stroke exercise during refueling outages.	Relief Granted (g)(6)(i)
Valve VRR24	3.1.4.1	IWV-3521 Test method and frequency	1E12*VF084A-C 1E12*VF085A-C RHR keep fill checks, 1CCP*V337 & V338 CRD pump bearing cooling supplys	Perform sample disassembly and inspection as described in IST program.	Relief Granted (g)(6)(i) provided compliance with GL 89-04, Position 2.
Valve VRR24	3.1.4.2	IWV-3521 Test method and frequency	1HVK*V48 & 97 service water supply to chill water compression tank	Perform sample disassembly and inspection as described in IST program.	Interim Relief Granted (a)(3)(i) for 6 months. Additional information needed to complete evaluation.
Valve VRR24	3.1.4.3	IWV-3521 Test method and frequency	1E51*VF030 RCIC pump suction from suppression pool	Perform sample disassembly and inspection as described in IST program.	Relief Granted (a)(3)(i) provided the valve is part-stroke exercised prior to return to service.
Valve VRR24	3.1.4.4	IWV-3521 Test method and frequency	1LSV*V114 & 120 MSIV leakage control system accumulator supply valves	Perform sample disassembly and inspection as described in IST program.	Interim Relief Granted (a)(3)(i) for 6 months. Additional information needed to complete evaluation.

RIVER BEND STATION, UNIT 1
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SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VRR24	3.1.4.5	IWV-3521 Test method and frequency	Various series check valves without intermediate test connections	Perform sample disassembly and inspection as described in IST program.	Relief Granted (g)(6)(i) provided compliance with GL 89-04, Position 2.
Valve VRR25	3.8.4.4	IWV-3521 Test frequency	1SWP-V135, V136, V143, and V144 diesel generator service water supply header checks	Full-stroke exercise each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR26	3.2.1.1	IWV-3521 Test frequency	1C11-VF122 control rod drive containment check	Verify closure during refueling outages.	Relief Granted (g)(6)(i)
Valve VRR26	3.4.1.1	IWV-3521 Test frequency	1CNS-V86 containment condensate supply check	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR26	3.7.1.1	IWV-3521 Test frequency	1CCP-V118 reactor plant CCW containment supply check, -V160, reactor plant CCW thermal relief	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR26	3.9.1.1	IWV-3521 Test frequency	1SAS-V486 containment service air supply check	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR26	3.10.1.1	IWV-3521 Test frequency	1IAS-V80 containment instrument air supply check	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)

RIVER BEND STATION, UNIT 1
SER TABLE 1
SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VRR26	3.13.1.1	IWV-3521 Test frequency	1FPW-V263 containment fire protection water supply check	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR26	3.17.1.1	IWV-3521 Test frequency	1HVN-V541 containment chilled water supply check, -V136, containment chilled water thermal relief ck	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR26	3.19.1.1	IWV-3521 Test frequency	1SFC-V101, fuel pool cooling return containment isolation check	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR28	3.5.1.1	IWV-3411 and -3521 Test frequency	1B21-VF010A & B inboard reactor feedwater checks AOVF032A & B outboard reactor feedwater checks	Verify closure during refueling outages.	Relief Granted (g)(6)(i)
Valve VRR31	3.1.2.1	IWV-3420 through -3427 Leak rate testing	All primary containment isolation valves	Utilize 10 CFR 50, Appendix J, and River Bend Leak Rate program.	Relief Granted (g)(6)(i) provided licensee complies with GL 89-04, Position 10
Valve VRR33	3.2.2.1	IWV-3411 and -3413(b) Test frequency and method	1C11-AOV126 and -AOV127, control rod scram inlet and outlet	Verify operability in accordance with Tech. Specs. and GL 89-04, Position 7.	Relief Granted (g)(6)(i)
Valve VRR33	3.2.3.1	IWV-3521 Test frequency	1C11-V114 scram discharge header check 1C11-V115 accumulator charging header check	Verify operability in accordance with Tech. Specs. and GL 89-04, Position 7.	Relief Granted (g)(6)(i)

RIVER BEND STATION, UNIT 1
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SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VRR38	3.1.3.1	IWV-3417 Trend valve stroke times	All rapid-acting valves	Assign 2 second maximum value of limiting stroke time and 1 second alert limit.	Relief Granted (a)(3)(i)
Valve VRR41	3.20.1.3	IWV-3521 Test frequency	1DER-V4, drywell and containment equipment drain sumps discharge thermal relief checks	Verify closure during refueling outages.	Relief Granted (g)(6)(i)
Valve VRR42	3.8.1.1	IWV-3521 Test frequency	1SWP-V174 and -V175, drywell coolers service water supply checks	Verify open during cold shutdown and closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR51	3.19.1.2	IWV-3521 Test frequency	1SFC-V350, -V351, upper containment fuel pool suction thermal relief checks	Verify closure during leak testing each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR56	3.15.1.1	IWV-3413(a) Stroke timing	1EGA-SOVX11A, -SOVX11B, -SOVY11B, 1CSH-SOV234, -SOV247, diesel generator air start solenoids	Verify operability by monitoring proper diesel start times and accumulator pressures.	Relief Granted (g)(6)(i)
Valve VRR57	3.6.3.1	IWV-3521 Test frequency	1B21-VF078B and -VF078J, main steam safety/relief valve discharge line vacuum breakers	Manually full-stroke exercise during refueling outages.	Relief Granted (g)(6)(i)

RIVER BEND STATION, UNIT 1
SER TABLE 1
SUMMARY OF RELIEF REQUESTS

RELIEF REQUEST NUMBER	TER SECTION	SECTION XI REQUIREMENT & SUBJECT	EQUIPMENT IDENTIFICATION	ALTERNATE METHOD OF TESTING	ACTION BY USNRC
Valve VRR58	3.8.3.2	IWV-3411 Test frequency	1SWP-MOV57A and -MOV57B, standby service water supply isolations	Full-stroke exercise and stroke time during refueling outages.	Relief Denied
Valve VRR58	3.8.4.1	IWV-3521 Test frequency	1SWP-V326 and -V327, standby service water supply header checks	Full-stroke exercise each refueling outage.	Relief Granted (g)(6)(i)
Valve VRR59	3.16.1.1	IWV-3421 through -3427 Leak rate testing	1HVR-AOV123, -AOV165, -AOV128, -AOV168, containment purge supply and exhaust isolations	Leak test every 92 days in accordance with Tech. Spec.	Relief Granted (a)(3)(i)

EGG-NTA-8288

TECHNICAL EVALUATION REPORT
PUMP AND VALVE INSERVICE TESTING PROGRAM
RIVER BEND STATION

Docket No. 50-458

R. S. Hartley
T. L. Cook

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Idaho National Engineering Laboratory
EG&G Idaho, Inc.
Idaho Falls, Idaho 83415

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ABSTRACT

This EG&G Idaho, Inc., report presents the results of our evaluation of the River Bend Station Inservice Testing Program for safety-related pumps and valves.

PREFACE

This report is supplied as part of the "Review of Pump and Valve Inservice Testing Programs for Operating Reactors (III)" being conducted for the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Mechanical Engineering Branch, by EG&G Idaho, Inc., Regulatory and Technical Assistance Unit.

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TECHNICAL EVALUATION REPORT
PUMP AND VALVE INSERVICE TESTING PROGRAM
RIVER BEND STATION

1. INTRODUCTION

Contained herein is a technical evaluation of the pump and valve inservice testing (IST) program submitted by the Gulf States Utilities Company for its River Bend Station.

By a letter dated January 30, 1987, Gulf States Utilities submitted Revision 3 of their IST program for River Bend Station for their first ten year interval, which commenced June 16, 1986. A working meeting was held with Gulf States Utilities and River Bend representatives on December 15 and 16, 1987. The licensee's IST program, Revision 5, as attached to J. E. Brooker letter to NRC, dated April 22, 1988, as well as additional changes in Revision 5A, as attached to W. H. Odell letter to NRC, dated June 12, 1990, were reviewed to verify compliance of proposed tests of Class 1, 2, and 3 safety-related pumps and valves with the requirements of the ASME Boiler and Pressure Vessel Code (the Code), 1980 Edition, through the Winter of 1981 Addenda.

Any IST program revisions subsequent to those noted above are not addressed in this technical evaluation report (TER). Program changes involving additional or revised relief requests should be submitted to NRC under separate cover in order to receive prompt attention, but should not be implemented prior to review and approval by NRC. Other IST program revisions should follow the guidance of NRC Generic Letter No. 89-04 (GL 89-04), "Guidance on Developing Acceptable Inservice Testing Programs."

In their submittal, Gulf States Utilities has requested relief from the ASME Code testing requirements for specific pumps and valves and these requests have been evaluated individually to determine whether compliance with those requirements is indeed impracticable. This review was performed utilizing the acceptance criteria of the Standard Review Plan,

Section 3.9.6, the Draft Regulatory Guide and Value/Impact Statement titled "Identification of Valves for Inclusion in Inservice Testing Programs", and GL 89-04. These IST program testing requirements apply only to component testing (i.e., pumps and valves) and are not intended to provide the basis to change the licensee's current Technical Specifications for system test requirements.

Section 2 of this report presents the Gulf States Utilities bases for requesting relief from the Section XI requirements for the River Bend Station pump testing program and EG&G's evaluations and conclusions regarding these requests. Similar information is presented in Section 3 for the valve testing program.

A listing of P&IDs used for this review is contained in Appendix A.

Inconsistencies and omissions in the licensee's program noted during the course of this review are listed in Appendix B. The licensee should resolve these items in accordance with the evaluations, conclusions, and guidelines presented in this report.

2. PUMP TESTING PROGRAM

The River Bend Station IST program submitted by Gulf States Utilities was examined to verify that all pumps that are included in the program are subjected to the periodic tests required by the ASME Code, Section XI, 1980 Edition through the Winter 1981 Addenda, the NRC regulations, positions, and guidelines. The reviewers found that, except as noted in Appendix B or where specific relief from testing has been requested, these pumps are tested to the Code requirements, the NRC regulations, positions, and guidelines. Each Gulf States Utilities basis for requesting relief from the pump testing requirements and the reviewer's evaluation of that request are summarized below and grouped according to system.

2.1 All Pumps in the IST Program

2.1.1 Bearing Temperature Measurements

2.1.1.1 Relief Request. The licensee has requested relief from measuring bearing temperature annually on all pumps in the IST program in accordance with the requirements of Section XI, Paragraph IWP-3300, and proposed to measure vibration velocity to monitor bearing degradation.

2.1.1.1.1 Licensee's Basis for Requesting Relief--Industry data has shown that bearing temperature changes due to degrading bearings occurs only after major degradation has occurred at the bearing. Prior to this, vibration monitoring would more likely provide information to identify changes in the condition of bearings. Reliance on vibration monitoring would allow corrective actions to be taken prior to the failure of a bearing, the loss of the pump, and possible damage to the pump.

Alternate Testing: Measure vibration velocity.

2.1.1.1.2 Evaluation--The licensee has requested relief from the Code requirements for annual bearing temperature measurement for all pumps in their IST program and proposed to measure pump vibration velocity. It is widely recognized that pump bearing temperatures taken annually are unlikely

to aid in the detection of bearing degradation. The bearing housing temperature is subject to a variety of environmental factors which challenge the predictability of the measurement. Temperature measurements taken from the pump bearing housing may be more indicative of the ambient temperature of the pump's environment than of the bearing's condition and give little contribution to the determination of pump operability. Quarterly measurement of vibration will be more likely to indicate bearing degradation.

The licensee's proposal to measure pump vibration velocity (see section 2.1.2.1 of this report) would provide a reasonable alternative to the Code requirements if performed in accordance with all the requirements of ASME/ANSI OMa-1988, Part 6, for vibration measurement and evaluation. The Part 6 vibration measurement program represents a significant improvement over the Code vibration program and gives adequate assurance of component operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that the licensee's proposed testing method provides a reasonable alternative to the Code requirements, relief should be granted provided the licensee performs vibration testing in accordance with the requirements of ASME/ANSI OMa-1988, Part 6.

2.1.2 Vibration Measurements

2.1.2.1 Relief Request. The licensee has requested relief from measuring vibration amplitude on all pumps in the IST program in accordance with the requirements of Section XI, Paragraph IWP-4510, and proposed to measure vibration velocity during pump tests.

2.1.2.1.1 Licensee's Basis for Requesting Relief--Standard industry practice is to use vibration velocity as a basis for the establishment of vibration standards for machinery operating at normal pump speeds. Vibration velocity is used because it is independent of frequency in this RPM range, thus yielding a simple reliable measure of the severity of the vibration.

Alternate Testing: Measure vibration velocity. Allowable ranges for vibration velocity will be:

Acceptable:	2.5 x Reference Value (in./sec)
Alert:	>2.5 to 6 x Reference Value (in./sec)
Required Action:	Greater than 6 x Reference Value (in./sec)

(Reference ANSI OM-6-1986, Draft 8)

2.1.2.1.2 Evaluation--Pump bearing degradation typically results in increased bearing noise at frequencies 5 to 100 times the rotational frequency of the pump. These high frequency bearing noises would not produce a significant increase in pump vibration displacement measurements and could go undetected. However, the high frequency noises would result in relatively large changes in pump vibration velocity measurements, which could signal the need for corrective action prior to catastrophic failure of the bearing if vibration velocity is measured. Because of the high frequencies of the vibrations associated with the pump bearings, vibration velocity measurements are generally much better than vibration displacement measurements in monitoring the mechanical condition of pumps and detecting pump bearing degradation.

The advantages of using vibration velocity instead of displacement for monitoring the mechanical condition of pumps, with the exception of reciprocating pumps, are widely acknowledged in the industry. A comprehensive pump testing program utilizing vibration velocity readings taken over a wide frequency range can provide a great deal of information about pump mechanical condition that could not be obtained by using vibration displacement readings. However, the licensee's proposed vibration testing program is not described adequately. For example; there is no discussion regarding pump vibration measurement locations. Additional information would be required to fully evaluate and approve the licensee's proposed vibration testing program, yet, a pump vibration measurement program performed in accordance with the applicable ASME/ANSI OMa-1988,

Part 6, requirements is acceptable to NRC and gives an adequate level of quality and safety and provides a reasonable alternative to the Code requirements.

Since the licensee's proposed alternate testing method provides a reasonable alternative to the Code requirements, relief should be granted provided the licensee performs pump vibration testing in accordance with all the vibration monitoring criteria in ASME/ANSI OMa-1988, Part 6.

2.1.3 Instrument Range

2.1.3.1 Relief Request. The licensee has requested relief from the instrumentation full-scale range requirements of Section XI, Paragraph IWV-4120, for suction pressure instruments for all pumps in the IST program except the standby service water pumps and the diesel generator fuel oil transfer pumps.

2.1.3.1.1 Licensee's Basis for Requesting Relief--An operating pump's suction pressure may be near zero with the idle suction pressure comparatively high. A pressure instrument with the full-scale range no more than three times the running suction pressure could be off scale when the pump is idle. When compared to the discharge pressure, such accuracy for the running suction pressure is unnecessary.

Alternate Testing: The full-scale range of the instrument used to measure the operating pump suction pressure shall be three times the idle pump inlet pressure or less. The instrumentation used will meet the accuracy requirements of the Code.

2.1.3.1.2 Evaluation--The licensee has proposed to utilize pump suction pressure instruments whose full-scale range might exceed three times the reference value for dynamic inlet pressure. This is to prevent over-ranging and damage to the instrument when the pump is idle and the inlet pressure is at a higher value. The difference between idle and operating inlet pressure for most pumps is generally fairly small and slight errors in inlet pressure measurement (1 to 2 psi), which may result from

exceeding the range requirements for dynamic inlet pressure, have less significance when used with discharge pressure (several hundred psi) to determine differential pressure. Therefore, the licensee's proposal should provide sufficiently accurate data to utilize in the pump monitoring program to assess pump degradation and provides an acceptable level of quality for an interim period. However, more specific information is needed complete this relief request evaluation prior to granting long term relief from this Code requirement. The licensee should provide information specifically describing the differences in static and dynamic inlet pressure for the affected pumps and an evaluation that shows their proposal will give adequate assurance of operational readiness for these pumps. Therefore, since the licensee's proposal provides an acceptable level of quality and safety, interim relief should be granted from the range requirements for one year or until the next refueling outage, whichever is longer. Before the end of this period the licensee should provide the above requested information.

2.1.4 Frequency of Inservice Tests

2.1.4.1 Relief Request. The licensee has requested relief from stopping running pumps to obtain an idle pump inlet pressure measurement in accordance with the requirements of Section XI, Table IWP-3100-1, Note 1, for all pumps in the IST program.

2.1.4.1.1 Licensee's Basis for Requesting Relief--If the pump is in operation to support plant operation and/or safety at the time of the test, shutting the pump down merely to measure the idle suction pressure could adversely impact plant safety. There are no acceptance criteria based on the idle suction pressure.

Alternate Testing: If the pump is already in operation prior to start of the test, the measurement of the idle suction pressure will not be required.

2.1.4.1.2 Evaluation--The measurement of static inlet pressure for a pump can indicate whether there is sufficient net positive suction head (NPSH) to support pump operation. However, this can also be determined to be adequate by observing the operation of a running pump. It is not

reasonable to require the licensee to stop a pump that is continually operating during the test interval simply to measure static inlet pressure. Especially when this significantly impacts plant operation. Stopping these pumps to measure inlet pressure in accordance with the Code requirements would constitute a hardship on the licensee without a compensating increase in the level of safety.

However, for pumps that are started or stopped during the test period compliance with this requirement should not pose an excessive hardship. For these pumps this measurement should be made as near as possible to the time of the Section XI test to verify adequate NPSH and to help ensure reference conditions are achieved. The licensee's proposal gives adequate assurance of operational readiness for pumps that are operated continuously during the testing interval and provides a reasonable alternative to the Code requirements for these pumps while considering the hardship that would be imposed on the licensee if these pumps were stopped solely for the test.

Based on the determination that complying with the Code requirement of Table IWP-3100-1, Note 1, would result in excessive hardship on the licensee without a compensating increase in safety and considering the licensee's proposal, relief should be granted provided the affected pumps that are started or stopped during the test interval have this measurement taken as near to the time of the pump test as practical.

2.1.5 Corrective Action

2.1.5.1 Relief Request. The licensee has requested relief from the allowable ranges of test quantities contained in Section XI, Table IWP-3100-2, and proposed to analyze all test parameters for all pumps in accordance with the guidance of ANSI/ASME OM-6-1986, Draft 8, and to recalibrate instrumentation and repeat the pump test without declaring the affected pump inoperable if test values for differential pressure and flow fall into the "Alert" range high value bracket.

2.1.5.1.1 Licensee's Basis for Requesting Relief--The Required Action Range high values for differential pressure and flow do not indicate degraded pump performance. The high values indicate that the test

instrumentation is out of calibration since the probability of a centrifugal pump with synchronous motor demonstrating an increase in performance is remote. A pump should not be declared inoperative until a retest with recalibrated instrumentation is performed within 96 hours, since the pump can obviously continue to meet its required design basis demand. Safety of plant operation is not compromised.

Upon completion of the retest(s), the test data shall be analyzed within 96 hours of test completion. This analysis shall determine operability. This does not reduce plant safety by affecting design bases due to test results which indicate instrumentation has drifted out of calibration.

Alternate Testing: Change the Required Action Range high values for differential pressure and flow to ≥1.10 delta P and Q and change the Alert Range High Values for differential pressure and flow to 1.02 to 1.10 delta P and 1.02 to 1.10 Q. If deviations fall within the Alert Range high values for differential pressure and flow, the instruments shall be recalibrated and the test will be reperformed within 96 hours. Should the retest results remain within the Alert range, the test frequency shall increase. (Reference ANSI OM-6-1986, Draft 8)

2.1.5.1.2 Evaluation--The licensee has not provided the technical basis that shows that the proposed acceptance criteria will give adequate assurance of pump operational readiness when applied to their pump test parameter values as part of Section XI testing. The Section XI limits are more restrictive than those proposed on the high side. This, in-effect, limits the amount of deviation in instrument calibration since it is unlikely that pump hydraulic performance would increase. Expanded high side limits would greatly increase the range of test parameter values that would be acceptable and could act to allow continued operation of a pump suffering severe degradation. Therefore, relief should not be granted from the requirement to comply with the "Alert" and "Required Action" limits presented in Section XI.

The licensee has proposed that when pump differential pressure or flow rate measurements enter their proposed "Alert" high range, the test instruments will be recalibrated and the test rerun within 96 hours rather than declaring the pump inoperable. However, test data in the "Required Action" high range indicates a significant change has occurred and actual pump condition is unknown. The affected instrument might have been out of calibration (high) during the previous test(s) and the pump might have suffered significant degradation that went undetected. Since the pump could be degraded, the licensee should declare it inoperable and comply with applicable Technical Specification provisions. Also, it is the NRC staff's position that as soon as data is recognized as being within the "Required Action" range, the associated component must be declared inoperable and the TS ACTION time must be started. This is discussed in Generic Letter No. 89-04 (GL 89-04), Attachment 1, Position 8.

Since data indicate a significant change has occurred and actual pump condition is unknown (prior to the retest with recalibrated instruments) it would not be conservative and could be incorrect to consider the pump operable. Therefore, relief should not be granted as requested. The licensee should declare the pump inoperable when the test data falls into the "Required Action" range of Section XI.

2.2 Standby Liquid Control Pumps

2.2.1 Flow Measurement

2.2.1.1 Relief Request. The licensee has requested relief from directly measuring the flow rate for the standby liquid control (SLC) pumps, 1C41-PC001A and -PC001B, in accordance with the requirements of Section XI, Paragraph IWP-4600, and proposed to calculate flow rate during pump tests.

2.2.1.1.1 Licensee's Basis for Requesting Relief--Since there is no orifice flange for flow measurement instrumentation installed in the test circuit of the piping for the SLC pumps nor are there sufficient locations for obtaining an accurate pressure drop measurement, flow rate shall be obtained indirectly by measuring the amount of liquid being pumped within a measured time period.

Alternate Testing: Flow is measured indirectly by marking with a piece of masking tape on the sightglass the initial level of the SLC test tank and then measuring the amount of time needed for the level to drop 5 in. A calculation is then performed to determine the flow rate.

2.2.1.1.2 Evaluation--It is impractical to directly measure SLC pump flow during tests because there are no flow instruments installed in the test flow path. Installation of instrumentation to directly measure flow rate would require system redesign and modifications which would be costly and burdensome to the licensee. However, the pump flow rate can be readily obtained by timing the rate of the test tank level change. This alternate method can give adequate assurance of pump operational readiness and provide a reasonable alternative to the Code flow measurement requirement provided the determination is at least as accurate as the Code requires for flow rate measurement.

Based on the impracticality of complying with the Code requirements and considering the burden on the licensee if those requirements were imposed and the licensee's proposal, relief should be granted from direct measurement requirements of Section XI as requested provided the flow rate calculations meet the accuracy requirements of Table IWP-4110-1 for measured values.

2.2.2 Inlet and Differential Pressure

2.2.2.1 Relief Request. The licensee has requested relief from measuring inlet pressure and differential pressure on the SLC pumps, 1C41-PC001A and -PC001B, in accordance with the requirements of Section XI, Paragraph IWP-4240 and proposed to evaluate pump discharge pressure.

2.2.2.1.1 Licensee's Basis for Requesting Relief--The pumps draw test water or the sodium pentaborate solution out of tanks only a few feet above the pump suction elevation, therefore, operating suction pressure is very near zero. These are positive displacement pumps with a normal discharge pressure of between 1000 and 1200 psig, therefore, the suction pressure is negligible when determining the pump differential pressure. The

inlet pressure has no affect on the pump discharge pressure as these are positive displacement pumps.

Alternate Testing: Assume the differential pressure across the pump to be equal to the discharge pressure of the pump.

2.2.2.1.2 Evaluation--These are positive displacement pumps. Their outlet pressure is dependant on the pressure of the system into which they are pumping and is not affected significantly by either inlet pressure (providing adequate net positive suction head exists) or flow rate. For these pumps, differential pressure and flow rate are not dependant variables as they are for centrifugal type pumps. For this reason, calculating or measuring inlet or differential pressure would not contribute meaningful data to utilize in monitoring pump degradation. The licensee's proposal to evaluate pump discharge pressure when used with flow rate should provide sufficient information to adequately monitor the hydraulic condition of these pumps and provides an acceptable level of quality.

Based on the determination the licensee's proposed alternative is essentially equivalent to the Code requirements, relief should be granted as requested.

2.2.3 Test Frequency

2.2.3.1 Relief Request. The licensee has requested relief from testing the SLC pumps, 1C41-PC001A and -PC001B, in accordance with the frequency requirements of Section XI, Paragraph IWV-3400(a) and proposed to test them during cold shutdowns if not tested within the last 92 days.

2.2.3.1.1 Licensee's Basis for Requesting Relief--The operability test of the pumps during normal operation will require both pumps to be made inoperable during the testing since they both have a common suction line. Also, running the pumps for the Code required 5 minutes prior to data collection at their rated 41 gal. per minute would not allow use of a portable container (i.e., 55 gal. drum). Due to the refilling and measurement of the test tank the necessity of flushing the sodium pentaborate solution from the suction lines which requires the chemistry

department to perform sampling prior to discharge to the suppression pool, the time required to perform testing of both pumps could easily exceed the short time (8 hr.) allowed for the limiting condition for operation. This system would also require manual realignment of valves inside containment should emergency conditions require system operation during testing. Containment may not be accessible during an accident for this required manual valve realignment.

Alternate Testing: The pumps will be tested during cold shutdown if not performed within the previous 92 days.

2.2.3.1.2 Evaluation--The SLC pumps function to inject chemical poison into the reactor vessel to shut down the reactor following an anticipated transient without scram (ATWS). The licensee has stated that testing both of these pumps quarterly during power operation results in entering a Technical Specification Limiting Condition for Operation (LCO) (for having both SLC subsystems inoperable), which could cause a plant shutdown due to the time required by the licensee's procedures for refilling the test tank, flushing the subsystems, and sampling water chemistry.

The required valve lineup for testing either SLC subsystem, which directs condensate water to the SLC pump suctions and the discharge to a test volume, renders the SLC system inoperable. Plant Technical Specifications specifically allow up to 8 hours operation in this condition. However, it appears that the untested subsystem can be returned to operability as soon as the normal valve lineup for the subsystem under test is restored and with only one subsystem of SLC inoperable plant Technical Specifications allow the licensee 7 days to return it to service or commence plant shutdown. After the tested subsystem has been flushed, tested, and returned to service, the other subsystem can be tested in similar fashion.

Chemical contamination of the pump suction lines with sodium pentaborate presents a significant concern to the licensee. Chemical sampling of the system as well as the flushing of these lines per plant administrative test procedures contributes greatly to the test duration. Based on testing of this system at similar plants and a review of the system

prints the reviewer believes the SLC pumps can be individually tested and at least one subsystem can be returned to service well within the 8 hr Technical Specification LCO. However, this might require that the procedures for inservice testing of these pumps be evaluated and revised, as necessary, to ensure timely completion.

These are standby pumps and are not subjected to the degree of service-induced degradation seen by many constantly or frequently operated pumps. Further, the current test procedures could result in an unnecessary plant shutdown if these pumps are required to be tested quarterly. This would impose a hardship on the licensee. Therefore, interim relief from testing these pumps quarterly, for a period of six months while the licensee evaluates and revises the SLC pump test procedures, should have little negative impact on plant safety or the determination of pump operational readiness in the interim and provides a reasonable alternative to the Code test frequency requirements.

Since testing these pumps quarterly could result in an unnecessary plant shutdown and considering the licensees proposal interim relief should be granted from the Code test frequency requirements for a period of six months.

2.3 Service Water Pumps

2.3.1 Inlet Pressure

2.3.1.1 Relief Request. The licensee has requested relief from measuring inlet pressure for the standby service water pumps, 1SWP-P2A, -P2B, -P2C, and -P2D, in accordance with the requirements of Section XI, Table IWP-3100-1, Note 1, and proposed to calculate pump inlet pressure.

2.3.1.1.1 Licensee's Basis for Requesting Relief--The suction section of the pumps is submerged in the pumped fluid. There is no method to measure the inlet pressure before and after pump startup. The fluid level above the pumps will remain unchanged during the test.

Alternate Testing: Calculate the pump inlet pressure from the hydrostatic head of fluid above the pump inlet at the time of test.

2.3.1.1.2 Evaluation--These service water pumps are vertical submerged suction type with no intake piping or inlet pressure measurement instrumentation. Direct measurement of pump inlet pressure is impractical. To directly measure running pump inlet pressure would require significant system design changes, which would be costly and burdensome to the licensee. The licensee's proposed alternate method, calculating pump suction pressure based on the height of water above the suction point, can give adequate information for evaluating pump operational readiness and present a reasonable alternative to the Code requirements, provided the determination is at least as accurate as the Code requires for flow rate measurement.

Based on the determination that compliance with the Code requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements are imposed, relief should be granted provided the inlet pressure calculation meets the accuracy requirements of Table IWP-4110-1 for direct measurements (±2%).

2.4 Fuel Oil Transfer Pumps

2.4.1 Inlet Pressure

2.4.1.1 Relief Request. The licensee has requested relief from measuring inlet pressure on the diesel generator fuel oil transfer pumps, 1EGF-P1A, -P1B, and -P1C, in accordance with the requirements of Section XI, Table IWP-3100-1, Note 1, and proposed to calculate pump inlet pressure.

2.4.1.1.1 Licensee's Basis for Requesting Relief--The suction section of the pumps is submerged in the pumped fluid. There is no method to measure the inlet pressure before and after pump startup. The fluid level above the pumps will remain unchanged during the test.

Alternate Testing: Calculate the pump inlet pressure from the hydrostatic head of fluid above the pump inlet at the time of test.

2.4.1.1.2 Evaluation--The diesel fuel oil transfer pumps take their suction directly from the fuel oil storage tanks and their inlet

pressure is due to the level of fuel oil in the tank above the pump inlet. They have no intake piping or inlet pressure measurement instrumentation, therefore, direct measurement of pump inlet pressure is impractical. To obtain dynamic pump inlet pressure measurement would require significant system design changes, which would be costly and burdensome to the licensee. The licensee's proposed alternate method, calculating pump inlet pressure based on the height of fluid above the pump inlet, can give adequate information for evaluating pump operational readiness and present a reasonable alternative to the Code requirements, provided the determination is at least as accurate as the Code requires for flow rate measurement.

Based on the determination that compliance with the Code requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements are imposed, relief should be granted provided the inlet pressure calculation meets the accuracy requirements of Table IWP-4110-1 for direct measurements (±2%).

2.4.2 Vibration Measurement

2.4.2.1 Relief Request. The licensee has requested relief from measuring vibration on the diesel generator fuel oil transfer pumps, 1EGF-P1A, -P1B, and -P1C, in accordance with the requirements of Section XI, Paragraph IWP-4510 and proposed no alternate test.

2.4.2.1.1 Licensee's Basis for Requesting Relief--The pumps are deeply submerged in the pumped fluid and are inaccessible to measure the vibration.

Alternate Testing: Vibration will not be measured.

2.4.2.1.2 Evaluation--These pumps are submerged in the diesel fuel oil storage tanks and are inaccessible for direct measurement of vibration. Therefore, direct measurement of vibration is impracticable. To obtain pump vibration measurements would require significant system design changes, which would be costly and burdensome to the licensee. However, some method of evaluating the mechanical condition of these pumps is essential to making an adequate assessment of operational readiness. The

licensee's proposal does not provide a reasonable long-term alternative to the Code requirements since it does not adequately evaluate these pumps' mechanical condition. However, since the licensee's testing of these pumps gives some assurance of operational readiness and considering the assurances gained from frequent Technical Specification surveillances of the diesel generator fuel oil transfer subsystem, interim relief should be granted from direct measurement of pump vibration for a period of one year or until the next refueling outage, whichever is longer. During the interim period the licensee should identify an appropriate method, such as evaluating pump motor vibration and assigning reasonable acceptance criteria, so that mechanical degradation of these pumps that may render them unable to perform their safety function is identified and appropriate corrective action is taken.

3. VALVE TESTING PROGRAM

The River Bend Station IST program submitted by Gulf States Utilities was examined to verify that all valves included in the program are subjected to the periodic tests required by the ASME Code, Section XI, and the NRC positions and guidelines. The reviewers found that, except as noted in Appendix B or where specific relief from testing has been requested, these valves are tested to the Code requirements and established NRC positions. Each Gulf States Utilities basis for requesting relief from the valve testing requirements and the reviewer's evaluation of that request is summarized below and grouped according to system and valve Category.

3.1 All Systems

3.1.1 Trending Valve Stroke Times

3.1.1.1 Relief Request. The licensee has requested relief from trending the stroke time measurements for all power operated valves in the IST program, except solenoid operated and testable check valves, in accordance with the requirements of Section XI, Paragraph IWV-3417(a), and has proposed to utilize acceptance based on deviation from a reference stroke time in monitoring valve degradation.

3.1.1.1.1 Licensee's Basis for Requesting Relief--Valves that are degrading slowly, i.e., hardening of motor operator grease, etc., are capable of meeting the acceptance criteria of IWV-3417(a) and going undetected as having a problem. Therefore, reference values will be used in lieu of the last measured previous test stroke time required by the code.

Alternate Testing: Reference values for power operated valve stroke times will be established when the valves are known to be operating acceptably. The acceptable range will be plus or minus 25% of the reference value for valves with stroke times greater than 10 seconds and plus or minus 50% of the reference value for valves with stroke times less than or equal to 10 seconds. If the stroke time exceeds this range but is below the maximum allowable stroke time, test frequency shall be increased to once

each month until corrective action is taken. Note that closure stroke times greater than the maximum allowable stroke time will require the valve to be immediately declared inoperable.

3.1.1.1.2 Evaluation--Basing the trending of stroke times for power operated valves on the stroke time measured for a valve during its previous test can permit the gradual degradation of a valve over an extended period of time without taking any action until the limiting value of full-stroke time is exceeded. If the measured stroke time increases at a rate of 24% or less per test for valves with full-stroke times greater than 10 seconds or 49% or less per test for those valves with full-stroke times less than or equal to 10 seconds, no additional testing or valve evaluation is required until the limiting value of full-stroke time is exceeded. This could result in significant valve degradation before action is taken. There are no Code guidelines on setting limiting values of full-stroke time for power operated valves, however, GL 89-04, Attachment 1, Position 5, does provide guidance and should be utilized when establishing the maximum limiting value of full-stroke time for power operated valves.

The licensee's proposed alternate testing method of establishing reference stroke times for power operated valves and taking corrective action when the measured stroke time differs from the reference value by ±25%, for valves whose reference values are greater than 10 seconds, or ±50% for values whose reference values are less than or equal to 10 seconds, is more conservative than the Code requirements. This method does not permit the continued gradual degradation of valves without taking corrective action. If the measured stroke time of a valve varies by more than the allowable 25% or 50%, the valves will be considered in "Alert" and will be evaluated and tested monthly until the valve is declared inoperable or repaired. This method can require action based on a decrease in valve stroke time as well as on an increase. Therefore, the licensee's proposal gives adequate assurance of operational readiness and provides an acceptable level of quality.

Based on the determination that the licensee's proposed testing method provides and acceptable level of quality, relief should be granted from the Section XI requirements of IWV-3417(a) as requested.

3.1.2 Containment Isolation Valves

3.1.2.1 Relief Request. The licensee has requested relief from leak testing all primary containment isolation valves in accordance with the requirements of Section XI, Paragraphs IWV-3420 through -3427, and proposed to leak test these valves in accordance with 10 CFR 50, Appendix J and administrative guidelines.

3.1.2.1.1 Licensee's Basis for Requesting Relief--Containment isolation valve leak rate testing will be conducted pursuant to Appendix J. The limitations of Appendix J shall be met. Adherence to these conditions limits overall leakage to less than that allowed by ASME IWV-3421-3427. Therefore, the River Bend Leak Rate Program will provide for a more limiting and a more conservative overall leak program.

The River Bend Leak Rate Program will also proceduralize an administrative maximum allowable leak rate for all valves required to be Type "C" tested pursuant to 10 CFR 50, Appendix J. The program will also set administrative guidelines based on test results once a sufficient number of tests have been performed. This analysis will be used to determine predicted failures and rate of degradation, if any. Results will be used to enhance predictive maintenance and allow River Bend flexibility in order to comply with ALARA concerns and maximum utilization of resources. Guidelines will also be set as to maximum allowable predicted leak rate based on past performances. Corrective action shall be taken whenever a tested valve exceeds the maximum allowable leak rate as set forth by the River Bend Leak Rate Program (Reference ANSI/ASME OM-10, Section 5223).

Alternate Testing: Conduct containment isolation valve leak rate testing in accordance with 10 CFR 50, Appendix J, and River Bend leak rate guidelines as expressed above.

3.1.2.1.2 Evaluation--NRC GL 89-04 addresses containment isolation valve testing in Position 10 and describes the testing that must be performed to obtain relief from the Code requirements. The leak test procedures and requirements for containment isolation valves identified by 10 CFR 50, Appendix J, are essentially equivalent to those contained in

Section XI, Paragraphs IWV-3421 through -3425. Appendix J, Type C, leak rate testing adequately determines leak-tight integrity of these valves.

Requiring leak rate testing containment isolation valves in accordance with the requirements of both Appendix J and Section XI, Paragraphs IWV-3421 through -3425, would impose a hardship on the licensee since it would be a duplication of effort with little or no increase in quality or safety. However, the 10 CFR 50, Appendix J, leak testing does not trend or establish corrective actions based on individual valve leakage rates as required by Paragraphs IWV-3426 and -3427.

Neither the licensee's Technical Specification limits, the collective criteria of Appendix J, nor proposed administrative limits has been shown to provide adequate assurance of individual component operational readiness as provided by Paragraph IWV-3426. The collective criteria of Appendix J have not been demonstrated more appropriate since those may allow a single valve to be significantly degraded. Technical Specification leakage rate limits are assigned to limit site boundary radiation doses to within the limits of 10 CFR 100 during and following an accident and are not intended to evaluate degradation of single components. Therefore, those limits are not adequate to replace the ASME Code specified limits, which are component oriented and designed to monitor and take corrective actions based on changes in component performance. The licensee's administrative limits, which when exceeded may initiate corrective action, have not been shown to be more conservative or equivalent to the Code requirements. Therefore, the licensee must comply with the requirements of Paragraph IWV-3426.

The licensee has not demonstrated that the Paragraph IWV-3427(a) requirements are impractical. However, the NRC staff agrees that an acceptable level of safety will be achieved if the requirements of IWV-3427(b) are not imposed since IWV-3427(b) for containment isolation valves does not provide useful information for evaluating valve condition. Therefore, the licensee must test the listed containment isolation valves to Appendix J, Type C, requirements and comply with IWV-3426 and -3427(a) to obtain relief from the Code requirements.

Based on the determination that compliance with the Code requirements is impractical and that leak testing in accordance with 10 CFR 50, Appendix J, provides a reasonable alternative to the requirements of Paragraphs IWV-3421 through -3425 and considering the burden on the licensee of leak testing these valves to both Section XI and Appendix J, relief should be granted from the requirements of Paragraphs IWV-3421 through -3425, provided the licensee complies with the requirements of Paragraphs IWV-3426 and -3427(a), as described in GL 89-04, Position 10, which provides an acceptable alternative to the Code requirements.

3.1.3 Rapid-Acting Valves

3.1.3.1 Relief Request. The licensee has requested relief from the stroke timing requirements of Section XI, Paragraph IWV-3417, for all direct-acting solenoid operated valves in the IST program and proposed to apply a maximum stroke time limit of two seconds to these valves as well as an alert limit of one second.

3.1.3.1.1 Licensee's Basis for Requesting Relief--Due to the high operating speed of this type of valve, the stroke time measured is due to the reaction time of the performer and is therefore meaningless. Applying a 50% time limit on such a short time interval will not provide an indication if the valve is slow or the performer is slow.

Alternate Testing: The maximum allowable stroke time will be two seconds. If the measured stroke time falls between one second and two seconds, the test frequency shall be increased to once each month until corrective action is taken. The stroke time is acceptable if it is measured at less than or equal to one second.

3.1.3.1.2 Evaluation--The licensee has proposed to assign a maximum stroke time limit of two seconds to rapid-acting solenoid valves in their IST program and to take corrective action if that limit is exceeded. Additionally, the licensee has established an "Alert" range (1 sec $\leq$stroke time $\leq$2 sec) where valve test frequency will be increased to monthly until corrective action is taken. This proposal is more conservative than NRC

staff Position 6 in GL 89-04 on Stroke Time Measurements for Rapid-Acting Valves and provides a reasonable alternative to the Code requirements. Therefore, relief should be granted from the Code requirements as requested.

3.1.4 Sample Disassembly

3.1.4.1 Relief Request. The licensee has requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521, for various Category C valves including 1E12*VF084A thru C and 1E12*VF085A thru C, keep-fill checks to the residual heat removal pump discharge lines, and valves 1CCP*V337 and V338, control rod pump bearing cooler supply line checks, and has proposed a sample disassembly and inspection program to demonstrate valve operability.

3.1.4.1.1 Licensee's Basis for Requesting Relief--For valves that cannot be exercised during plant operation as specifically identified in the Relief Request, the required full-stroke exercise testing of the valves during normal operation would require the systems to be made inoperable. The design of the associated system in each case is such that normal test methods are inadequate to confirm the test results. The valves are either back-to-back with no test connection between them or the pipe segment cannot be isolated. Therefore, these valves cannot be individually tested and verified operable by normal testing methods. An internal visual inspection and manual exercise of the disk will verify operability. This disassembly requires a refueling outage in order to provide adequate time for planning and implementation without impacting plant startup.

Note: The new draft of ANSI/ASME OM-10, Section 5324c, allows disassembly every refueling outage as an alternative to quarterly testing using normal test methods.

Alternate Testing: An internal visual inspection and manual exercise of the check valve disk in accordance with the following schedule:

First refueling - all check valves listed.

Second and subsequent refuelings - a sampling of the list of check valve consisting of one valve from each of the five designated groups

of valves which are grouped by similar design (manufacturer, size, model number, and materials of construction) and having similar service conditions.

A different valve of each group is required to be disassembled, inspected, and manually full-stroked at each refueling until the entire group has been tested. If it is found that the disassembled valve's full-stroke capability is in question, the remainder of the valves in that group must also be disassembled, inspected, and manually full-stroked at the same outage.

VALVE LIST

Valve	Type	Size	Group
1CCP*V337	1	2"	1
1CCP*V338	1	2"	1
1DFR*V78	2	4"	2
1DFR*V79	2	4"	2
1DFR*V87	2	4"	2
1DFR*V88	2	4"	2
1DFR*V97	2	4"	2
1DFR*V98	2	4"	2
1DFR*V107	2	4"	2
1DFR*V108	2	4"	2
1DFR*V117	2	4"	2
1DFR*V118	2	4"	2
1DFR*V127	2	4"	2
1DFR*V128	2	4"	2
1E12*VF084A,B,C (Note 1)	1	1.5"	3
1E12*VF085A,B,C (Note 1)	1	1.5"	3
1E51*VF030	3	6"	6
1HVK*V48	1	2"	1
1HVK*V97	1	2"	1
1LSV*V114	1	1"	4
1LSV*V120	1	1"	4
1SVV*V122	1	1.5"	5
1SVV*V123	1	1.5"	5
1SVV*V129	1	1.5"	5
1SVV*V130	1	1.5"	5

TYPE

1 - VCS060-A *13*Check valve 600 lb SH SA105 GR II CS body stellited trim bolted cap piston type integral seat

2 - VCH015-E *33*Check valve spring loaded 150 lb BH SA105 CS body stellited trim bolted cap piston type renewable seat

3 - VCW015-D *33*Check valve 150 lb BW A105 GR II CS body stellited trim bolted cap swing type renewable seat

Note 1: For these check valves between the line-fill pumps and the process lines only one of the pair of valves (i.e., VF084A and VF085A) is required to be disassembled, inspected, and exercised. However, if

the valve tested fails, then both of the valves in the pair need to be disassembled, tested, and reworked if necessary.

3.1.4.1.2 Evaluation--The licensee has proposed to perform sample disassembly and inspection of the above listed (total of 29) check valves. These valves have been divided into groups and are evaluated in Sections 3.1.4.1.2, 3.1.4.2.2, 3.1.4.3.2, 3.1.4.4.2, and 3.1.4.5.2 of this report. Many of these valves are in series with other check valves and there are no intermediate test taps or other provisions, such as external position indication, for verifying valve closure. However, disassembly and inspection should be used to manually exercise check valves open and/or shut only when full forward flow or reverse flow testing is impractical. The NRC staff considers check valve disassembly and inspection to be a maintenance procedure that is not a test and not equivalent to the exercising produced by fluid flow as required by Section XI. This procedure has some risks which may make its routine use as a substitute for testing undesirable when some testing method is possible. Check valve disassembly is a valuable maintenance tool that can provide a great deal of information about valve internal condition and as such should be performed under the maintenance program at a frequency commensurate with the valve type and service.

The licensee should actively pursue the use of alternate testing methods to full-stroke exercise these valves, such as using non-intrusive diagnostic techniques to demonstrate whether they swing fully open during partial flow testing or closed when flow has ceased. In the interim, when valve operational readiness cannot practically be determined by observation of system parameters, inspection may be used as an alternative, however, the licensee should perform post maintenance testing (e.g., forward and reverse flow closure testing) of each valve prior to returning it to service following the disassembly and inspection procedure. As additional experience is gained, the staff anticipates providing the industry with updated guidance on the subject as it relates to Code requirements and particularly, as an improvement over the use of disassembly and inspection.

Check valves 1E12*VF084A thru C and 1E12*VF085A thru C are valves in the keep-fill lines to the residual heat removal pump discharge lines.

These are series checks without intermediate test connections or external position indicators. It is impractical to individually exercise them to the closed position quarterly, during cold shutdowns, or during refueling outages. System redesign and modification would be necessary to allow reverse flow closure testing of each of these valves, which would be costly and burdensome to the licensee. Therefore, relief should be granted provided the licensee performs disassembly and inspection of these valves per GL 89-04, Position 2, which provides an acceptable alternative to the Code requirements.

It appears from system prints that limited testing of these valves is practicable. The valve set consisting of valve 1E12*VF084A and series partner 1E12*VF085A (VF084B and VF085B, etc.) might be verified to close as a pair quarterly during the pump test by observing upstream keep-fill line pressure for evidence of back-leakage through these valves during the associated RHR pump test. This test would give adequate assurance of operational readiness of the valve pair and provide an acceptable alternative to the Code requirements provided that upon evidence of excessive leakage through the pair both series valves are declared inoperable and repaired or replaced prior to return to service. If testing these valve sets as described above is practicable the licensee should submit a revised or new relief request for these valves.

Check valves 1CCP*V337 and V338 might also be tested as a pair by establishing a reverse differential pressure across the pair and monitoring back leakage. These valves are in the return line from the bearing coolers for the control rod drive pumps and it is impractical to exercise them during power operation or during cold shutdowns when cooling is necessary for the reactor recirculation pump seals. System redesign and modification would be necessary to allow reverse flow closure testing of each of these valves, which would be costly and burdensome to the licensee. Therefore, relief should be granted provided the licensee performs disassembly and inspection of these valves per GL 89-04, Position 2, which provides an acceptable alternative to the Code requirements. If testing this valve set using a method similar to that described above for valves 1E12*VF084A thru C and 1E12*VF085A thru C is practicable the licensee should submit a revised or new relief request for these valves.

3.1.4.2 Relief Request. The licensee has requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521, for check valves, 1HVK*V48 and V97, service water supply to chilled water compression tank, and has proposed to utilize a check valve sample disassembly and inspection program to demonstrate valve operability.

3.1.4.2.1 Licensee's Basis for Requesting Relief--See discussion in Licensee's Basis for Requesting Relief, Section 3.1.4.1.1, of this report for licensee's proposed disassembly and inspection program.

3.1.4.2.2 Evaluation--See also Evaluation in Section 3.1.4.1.2 of this report regarding non-intrusive testing of check valves. Check valves 1HVK*V48 and V97 allow service water flow to the chilled water compression tank, which is the suction source for the control building chilled water pumps. The licensee has not specifically identified the technical concerns that demonstrate that relief should be granted from the Code testing method requirements under the provisions of 10 CFR 50. Additional information that shows that testing is impractical or that requiring testing of these valves would cause a hardship on the licensee without a compensating increase in safety is necessary to fully evaluate this relief request for valves 1HVK*V48 and V97. However, the licensee's proposal to disassemble and inspect these valves should give adequate assurance of valve operational readiness and provide a reasonable alternative to the Code requirements during an interim period of six months while the licensee evaluates the feasibility of testing these valves and submits additional information for NRC review.

3.1.4.3 Relief Request. The licensee has requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521, for check valve, 1E51*VF030, RCIC pump suction from the suppression pool and has proposed to utilize a check valve sample disassembly and inspection program to demonstrate valve operability.

3.1.4.3.1 Licensee's Basis for Requesting Relief--See discussion in Licensee's Basis for Requesting Relief, Section 3.1.4.1.1, of this report for licensee's proposed disassembly and inspection program.

3.1.4.3.2 Evaluation--See also Evaluation in Section 3.1.4.1.2 of this report regarding non-intrusive testing of check valves. Valve 1E51*VF030 is the RCIC pump suction from the suppression pool. It appears from the system prints that the closure function of this valve can be verified by draining upstream of the valve with condensate storage tank head on the downstream side of the valve disk. If practicable this closure test should be performed at least each refueling outage. However, there is no apparent method for full-stroke exercising the valve open. The only full flow path is into the reactor and the suppression pool water is relatively poor quality with chemical contaminants that could damage reactor coolant system heat transfer surfaces. The licensee should actively pursue alternate methods of full-stroke exercising this valve. The licensee's proposal to disassemble and inspect this valve each refueling outage should give adequate assurance of operational readiness in the open position and provide a reasonable alternative to the Code requirements provided the valve is part-stroke exercised open and closure capability is verified prior to return to service. Therefore, relief should be granted provided the valve is part-stroke exercised open and closure capability is verified prior to return to service.

3.1.4.4 Relief Request. The licensee has requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521, for valves, 1LSV*V114 and V120, MSIV leakage control system accumulator supply check valves from compressor, and has proposed to utilize a check valve sample disassembly and inspection program to demonstrate valve operability.

3.1.4.4.1 Licensee's Basis for Requesting Relief--See discussion in Licensee's Basis for Requesting Relief, Section 3.1.4.1.1, of this report for licensee's proposed disassembly and inspection program.

3.1.4.4.2 Evaluation--See also Evaluation in Section 3.1.4.1.2 of this report regarding non-intrusive testing of check valves. Valves 1LSV*V114 and V120 are not series checks, however, they are not equipped with test connections nor are they equipped with external operators or position indicators. These valves must close to maintain pressure in the main steam isolation valve positive leakage control accumulators. Closure

of these valves might be verified by depressurizing the upstream side of the valve and monitoring the associated accumulator pressure for evidence of leakage. The licensee has not demonstrated that relief should be granted from the Code requirements under the provisions of 10 CFR 50 for these valves. Additional information that shows that testing is impractical or that requiring testing of these valves would cause a hardship on the licensee without a compensating increase in safety is necessary to fully evaluate this relief request. However, the licensee's proposal to disassemble and inspect these valves should give adequate assurance of valve operational readiness and provide a reasonable alternative to the Code requirements during an interim period of six months while the licensee evaluates the feasibility of testing these valves and submits additional information for NRC review.

3.1.4.5 Relief Request. The licensee has requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521, for the following check valves and has proposed to utilize a check valve sample disassembly and inspection program to demonstrate valve operability.

Valve	Valve	Valve
1DFR*V78	1DFR*V107	1SVV*V122
1DFR*V79	1DFR*V108	1SVV*V123
1DFR*V87	1DFR*V117	1SVV*V129
1DFR*V88	1DFR*V118	1SVV*V130
1DFR*V97	1DFR*V127	
1DFR*V98		

3.1.4.5.1 Licensee's Basis for Requesting Relief--See discussion in Licensee's Basis for Requesting Relief, Section 3.1.4.1.1, of this report for licensee's proposed disassembly and inspection program.

3.1.4.5.2 Evaluation--See also Evaluation in Section 3.1.4.1.2 of this report regarding non-intrusive testing of check valves. These are series check valves without intermediate test connections. It is impractical to individually exercise these valves to the closed position quarterly, during cold shutdowns, or refueling outages. These valves are

not equipped with external operators or position indicators and cannot be tested in pairs to verify closure (their safety function). System redesign and modification would be necessary to allow reverse flow closure testing of each of these valves, which would be costly and burdensome to the licensee. The licensee should actively pursue the use of alternate testing methods to full-stroke exercise these valves, such as using non-intrusive diagnostic techniques to demonstrate that they swing fully closed when flow has ceased, as discussed in Section 3.1.4.1.2 of this report.

The licensee has proposed to disassemble and inspect these valves on a sample basis each refueling outage, however, the licensee has included twelve valves in one group. Assuming an eighteen month refueling cycle, each valve would be disassembled only once every eighteen years. This is not in accordance with the NRC staff position on "Alternative to Full Flow Testing of Check Valves," in GL 89-04 and does not provide a reasonable alternative to the Code requirements. Disassembling and inspecting these valves on a sampling basis each refueling outage, provided it is performed in accordance with GL 89-04, Position 2, gives adequate assurance of operational readiness in the closed position and provides a reasonable alternative to the Code requirements. Therefore, relief should be granted provided the licensee complies with the requirements of GL 89-04, Position 2, for these valves.

3.2 Control Rod Drive Hydraulic System

3.2.1 Category A/C Valves

3.2.1.1 Relief Request. The licensee has requested relief from exercising valve 1C11-VF122, control rod drive containment isolation check, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (its safety position) during leak testing each refueling outage.

3.2.1.1.1 Licensee's Basis for Requesting Relief--This system is not designed for exercise testing of this check valve. The safety function of this valve is to prevent containment leakage. Successful performance of

the containment local leak rate test will demonstrate that the valve is performing its function.

Alternate Testing: Perform a containment local leak rate test on this valve every refueling outage.

3.2.1.1.2 Evaluation--It is impractical to exercise and verify this valve closed during power operation or cold shutdowns when either reactor recirculation pump is operating. This check valve is in the seal water supply path to these pumps and seal water flow must be maintained during operation to prevent seal damage or reduced seal life. This valve is not equipped with external position indication or an external operator. System redesign and modification would be necessary to allow testing this valve closed during pump operation and would be costly and burdensome to the licensee. The only practical means for verification of closure is by leak testing the valve, which requires establishing a reverse differential pressure on the valve. Local leak rate testing of this valve during refueling outages gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code requirements is impracticable and considering the burden on the licensee if the Code requirements were imposed and the licensee's proposed testing frequency, relief should be granted as requested.

3.2.2 Category B Valves

3.2.2.1 Relief Request. The licensee has requested relief from exercising and stroke timing valves 1C11-AOV126 and -AOV127, control rod scram inlet and outlet, in accordance with the requirements of Section XI, Paragraphs IWV-3411 and -3413(b), and proposed to verify proper valve operation during the performance of individual control rod scram testing in accordance with plant Technical Specifications.

3.2.2.1.1 Licensee's Basis for Requesting Relief--Exercise and stroke time testing of the valves would require scramming the associated

control rod during power operation. The stroke time testing of the scram valves is adequately performed by the CRD scram time, and rod motion would be inhibited by failure of the valves to seat. This confirms valve 0038 closes. Improper operation of any of the other valves will also adversely affect the CRD scram time. A surveillance test confirms th . the CRD scram accumulators hold pressure for a minimum period of time.

Alternate Testing: Scram testing of the associated control rod drive as required by Technical Specifications 4.1.3.2.c of at least once per 120 days will prove proper operation of the subject valves. Acceptable scram times will be the acceptance criteria for the subject valves for exercising and stroke timing. This alternate testing is in conformance with NRC Generic Letter 89-04, Attachment 1, Item 7, for alternate testing of individual CRD valves in BWRs.

3.2.2.1.2 Evaluation--These valves cannot be exercised without causing the associated control rod to scram and they must operate properly in order that the associated control rod meets the scram insertion time limits defined in the Technical Specifications. Testing all these valves each quarter is impractical since it would result in excessive the wear of the control rod drive mechanisms and expose the reactor core to an exc ssive number of rapid reactivity transients. Additionally, system modifications would be necessary to allow direct stroke timing of these valves, which would be costly and burdensome to the licensee.

The licensee has stated that their alternate testing for these valves will be performed in accordance with GL 89-04, Attachment 1, Position 7, on Testing Individual Control Rod Scram Valves in Boiling Water Reactors (BWRs), which provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code requirements is impracticable and considering the burden on the licensee if the Code requirements are imposed and the licensee's proposal to comply with GL 89-04, Position 7, relief should be granted as requested

3.2.3 Category C Valves

3.2.3.1 Relief Request. The licensee has requested relief from exercising valves 1C11-V114, control rod scram discharge header check, 1C11-V115, accumulator charging header check, and 1C11-V138, scram accumulator cooling water check valve in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to verify operability per plant Technical Specifications and in conformance with GL 89-04, Position 7.

3.2.3.1.1 Licensee's Basis for Requesting Relief--Exercise and stroke time testing of the valves would require scramming the associated control rod during power operation. The stroke time testing of the scram valves is adequately performed by the CRD scram time, and rod motion would be inhibited by failure of the valves to seat. This confirms valve V138 closes. Improper operation of any of the other valves will also adversely affect the CRD scram time. A surveillance test confirms that the CRD scram accumulators hold pressure for a minimum period of time. This also confirms that valve V115 closes.

Alternate Testing: Scram testing of the associated control rod drive as required by Technical Specifications 4.1.3.2.c of at least once per 120 days will prove proper operation of the subject valves. Acceptable scram times will be the acceptance criteria for the subject valves for exercising and stroke timing. Valve V138 will be tested on the same frequency as the air operated scram valves. Valve V115 is confirmed closed during the accumulator pressure decay test performed per Technical Specification 4.1.3.3.b every refueling. This alternate testing is in conformance with NRC Generic Letter 89-04, Attachment 1, Item 7, for alternate testing of individual CRD valves in BWRs.

3.2.3.1.2 Evaluation--Valve 1C11-V114, control rod scram discharge header check is located in the scram discharge line and must open to allow the control rod to scram. Proper operation is verified during control rod scram testing if the associated control rod meets the scram insertion time limits defined in the Technical Specifications. Testing all

these valves each quarter is impractical since it would result in excessive the wear of the control rod drive mechanisms and expose the reactor core to an excessive number of rapid reactivity transients. Modifications to allow more frequent testing of these valves would be costly and burdensome to the licensee.

Valve 1C11-V115, accumulator charging header check is located in the accumulator charging water line and must close when the associated control rod is scrammed to prevent diversion of flow away from the scram flow path in the event the accumulator charging header became depressurized. However, since this valve is not equipped with position indication, the only practicable method available to verify closure is the licensee's proposed accumulator pressure decay test, which is performed in accordance with Technical Specifications. Since the charging header must be depressurized for the performance of this test it is impractical to perform this test quarterly or at any time during plant operation. Modifications to allow more frequent testing of these valves would be costly and burdensome to the licensee.

Valve 1C11-V138 is the accumulator cooling water check and must close to allow normal control rod motion. It is a simple check valve with no remote indication of valve position. The licensee has indicated that this valve will be exercised closed at the same frequency as the air operated scram valves (-AOV126 and -AOV127), however, the licensee has not stated how this valve will be verified to close or shown that it is impractical to exercise this valve at least quarterly. Testing this valve in accordance with GL 89-04, Position 7, provides a reasonable alternative to the Code requirements.

The licensee has stated that their alternate testing for these valves will be performed in accordance with GL 89-04, Attachment 1, Position 7, on Testing Individual Control Rod Scram Valves in Boiling Water Reactors (BWRs), which provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code requirements is impracticable and considering the burden on the licensee if the Code

requirements are imposed and the licensee's proposal to comply with GL 89-04, Position 7, for these valves, relief should be granted as requested.

3.3 Reactor Recirculation System

3.3.1 Category A/C Valves

3.3.1.1 Relief Request. The licensee has requested relief from exercising valves 1B33-VF013A and -VF013B, reactor recirculation pump inboard seal water supply checks, and 1B33-VF017A and -VF017B, reactor recirculation pump outboard seal water supply checks, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (their safety position) during performance of the drywell bypass leakage testing each refueling outage.

3.3.1.1.1 Licensee's Basis for Requesting Relief--The system was not designed for exercise testing of the check valves. The safety function for the valves is to prevent drywell bypass leakage. Valves VF013A and B are located in the drywell which is inaccessible during operation. Testing recirc pump seal isolation valves during operation would shut off cooling flow to the recirc pump and motor bearings resulting in damage to both recirc pumps and a forced plant shutdown as a result of Tech. Spec. for loss of reactor recirc pump.

Successful performance of the drywell bypass leakage test will demonstrate that the valves are performing their safety function. Due to the complexity of this test requiring extensive valve tagout, lineup, and time (more than two days) to prepare for and perform, the drywell bypass leakage test, along with exercising these valves, will be performed during refueling outages. The open position is verified during normal operation of the system.

Alternate Testing: Perform the drywell bypass leakage test.

3.3.1.1.2 Evaluation--These valves are in the seal water supply lines to the reactor recirculation pumps. It is impractical to exercise

these valves closed during power operation or during cold shutdowns when a reactor recirculation pump is operating because this would cause a loss of seal water flow to the pump, which could result in recirculation pump seal failure or greatly reduced seal life. Significant system redesign would be necessary to allow quarterly testing of these valves in the closed position, which would be costly and burdensome to the licensee. Additionally, performing this test during cold shutdowns would require the shutdown of the reactor recirculation pumps and could result in delaying the return to power which would be costly and burdensome to the licensee.

Testing these valves each refueling outage provides a reasonable alternative to the Code frequency requirements. However, the drywell bypass leakage test does not adequately evaluate the condition of the valve pair since it does not evaluate the pair individually. Since these are Category A/C valves the licensee is required to leak test these valves in accordance with IWV-3420 every two years. This test can adequately demonstrate the closure capability of the valve pair and is an acceptable test method. If there is evidence of excessive leakage through the pair both valves should be repaired or replaced prior to return to service. The licensee's test frequency provides a reasonable alternative to the Code test frequency requirements and testing these valves as a pair in accordance with IWV-3420 provides an acceptable alternative to the Code method requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed alternate test frequency and the burden on the licensee if the Code requirements are imposed, relief should be granted from the test frequency requirements of IWV-3521 as requested, provided the licensee tests this valve pair in accordance with IWV-3420.

3.4 Condensate Makeup, Storage, and Transfer Systems

3.4.1 Category A/C Valves

3.4.1.1 Relief Request. The licensee has requested relief from exercising valve 1CNS-V86, containment condensate supply check, in accordance with the test frequency requirements of Section XI, Paragraph

IWV-3521, and proposed to verify closure (its safety position) during leak testing each refueling outage.

3.4.1.1.1 Licensee's Basis for Requesting Relief--This system is not designed for exercise testing of this check valve. The safety function of this valve is to prevent containment leakage. Successful performance of the containment local leak rate test will demonstrate that the valve is performing its function.

Alternate Testing: Perform a local leak rate test on this valve every refueling outage.

3.4.1.1.2 Evaluation--This is a simple check valve located inside containment. It is not equipped with position indication. Installation of position indication would require system redesign and modifications, which would be expensive and burdensome to the licensee. The only method available to verify closure of this valve is to establish a pressure differential across it and to perform a leak test. Testing this valve requires entry into containment, system reconfiguration, and hook up of special test equipment, which is impractical to perform quarterly during power operation. Performing this test during cold shutdowns could result in delaying the return to power which would be costly and burdensome to the licensee. Leak rate testing this valve each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code frequency requirements is impracticable and considering the burden on the licensee if the Code requirements are imposed and the licensee's proposed test frequency, relief should be granted as requested.

3.5 Feedwater System

3.5.1 Category A/C Valves

3.5.1.1 Relief Request. The licensee has requested relief from exercising valves 1B21-VF010A, -VF010B, reactor feedwater header inboard

checks, -VF032A, and -VF032B, reactor feedwater header outboard checks, in accordance with the requirements of Section XI, Paragraphs IWV-3411 and -3521, and proposed to verify their closure during refueling outages.

3.5.1.1.1 Licensee's Basis for Requesting Relief--The exercise testing of these valves during normal operation would interrupt feedwater flow to the reactor resulting in a reactor scram due to low reactor water level and engineered safety feature actuation on low low reactor water level. An isolation of both feedwater lines during power operation will scram the reactor on low water level. Isolation of a single line above 5% power is not recommended by GE due to thermal stress to the reactor pressure vessel. The exercise testing of the valves during cold shutdown would require a RHR shutdown cooling loop to be inoperable. Technical Specifications require at least one loop of shutdown cooling in operation and one loop in standby and operable in Mode 4 (cold shutdown). Testing these valves would cause the affected RHR loop to become inoperable and results in a reduction in plant safety and entrance into a Limiting Condition for Operation.

Alternate Testing: An exercise test for each valve every refueling outage when there is greater than 23 ft of water over the reactor pressure vessel flange.

3.5.1.1.2 Evaluation--The safety-related function of these four check valves is to shut to isolate the reactor feedwater headers and open to provide a return flow path during shutdown cooling operation. They can be verified open quarterly during power operation but it is impractical to exercise them shut at this frequency because this requires interruption of reactor feedwater flow and could result in a reactor trip. Additionally, it is impractical to exercise these valves closed during cold shutdowns because it requires leak rate testing. Leak testing these valves is very difficult and requires that the header under test be made inoperable and drained before leak testing the associated valves. This test method could delay reactor startup due to the length of time required to drain the header and process the water through the radwaste system.

Also, since the reactor water cleanup system return flow path is through these valves, the reactor water cleanup system must be removed from service while leak testing and reactor vessel chemistry control could be lost which, in turn, could delay reactor startup because the Technical Specification chemistry limitations must be satisfied prior to startup. Delaying plant startup would be costly and burdensome to the licensee. The licensee's proposal to exercise these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code frequency requirements is impracticable and considering the burden on the licensee if the Code frequency requirements were imposed and the licensee's proposed test frequency, relief should be granted as requested.

3.6 Main Steam System

3.6.1 Category A/C Valves

3.6.1.1 Relief Request. The licensee has requested relief from exercising valves 1SVV-9 and -31, main steam safety/relief valve accumulators instrument air supply isolation checks, closed in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to verify valve closure (their safety position) during leak testing at refueling outages.

3.6.1.1.1 Licensee's Basis for Requesting Relief--Testing these valves requires access to the drywell where they are located. There is no access to the drywell during normal plant operation. Testing the valves during cold shutdowns would cause the loss of high pressure core spray suction auto transfer from the condensate storage tank to the suppression pool and since suppression pool grade water is of lower quality, it is an undesirable event causing an extension of the outage due to required cleanup of the additional water. Also, any ECCS available during an outage is crucial as maintenance and testing limit the number of required ECCS available. The suppression pool level instrumentation that initiates this

action is supplied air from this system. Finally, ALARA concerns are an important reason for not performing the testing during cold shutdowns, i.e., up to 2 man-rem exposure is likely even after waiting 60 days for decay. The valves are closed and tested for leak tightness every refueling outage.

Alternate Testing: Leak test every refueling outage. This also verifies the valves close.

3.6.1.1.2 Evaluation--The licensee's statement that these valves are inaccessible during power operation appears to be incorrect because, according to the P&IDs provided for the IST program review, the valves and associated test connections are located inside the containment but outside the drywell. The containment is accessible on a routine basis during power operation while the drywell is not.

The licensee's discussion of the water source for the HPCS is not consistent with the information provided at the working meeting where it was stated that loss of instrument air to the suppression pool level indication results in an automatic shift of the HPCS suction from the condensate storage tank to the suppression pool and not just a loss of the automatic suction shift function as stated in this relief request basis.

Full-stroke exercising these air supply check valves during cold shutdowns appears feasible because they are accessible, the HPCS suction source, the clean condensate storage tank, can be maintained, and the safety/relief valves are not required to be operable. These air supply check valves should not be full-stroke exercised during power operation because interrupting the air supply to the safety/relief valves could affect safety/relief functioning if difficulties are encountered during the check valve testing.

Since the licensee has not demonstrated that compliance with the Code frequency requirements is impracticable, relief should not be granted as requested.

3.6.2 Category B/C Valves

3.6.2.1 Relief Request. The licensee has requested relief from exercising the main steam safety/relief and automatic depressurization system (ADS) valves in accordance with the frequency requirements of Section XI, Paragraph IWV-3411, and proposed to full-stroke exercise them during refueling outages. The valves are:

1B21-RVF041A-D	1B21-RVF047A-D	1B21-RVF051B
1B21-RVF041F	1B21-RVF047F	1B21-RVF051C
1B21-RVF041G	1B21-RVF047G	1B21-RVF051D
1B21-RVF041L	1B21-RVF047L	1B21-RVF051G

3.6.2.1.1 Licensee's Basis for Requesting Relief--The exercise testing of the valves every three months during operation would interrupt plant operation by suddenly reducing reactor pressure and adding heat to the suppression pool. Technical Specification 4.5.1.e.2 requires testing the valves which are part of the automatic depressurization system only once per 18 months. Safety relief valves (SRVs) have a history of leaking past the seat during operations which causes the temperature of the suppression pool to rise. As there are sixteen (16) SRVs, this heating of the suppression pool can be significant should these be any severe leakers. The technical specification 3.6.3.1 limit of 95°F in the suppression pool during operations is a legitimate concern especially in the summer months when these is little cooling water delta T margin available. Testing these valves increases the likelihood of trapping contaminants on the seat thus permitting steam leakage and further steam cutting of the seat to occur. Often, a nonleaking valve will begin to leak after exercising. Such conditions may require shutdown of the reactor as a result of exacerbating the situation by testing.

Also, in order to address the NRC concern described in NUREG-0737, II.K.3.16 and NUREG-0626, Appendix B and F, challenges to SRVs failing to close during testing and consequently leading to small-break LOCA can be returned by reducing the frequency of testing.

Since these are main steam safety/relief valves, they will be functionally tested in accordance with Technical Specification 4.5.1.e.2.

Alternate Testing: The exercise testing of the valves will be performed following every refueling outage with steam pressure greater than 100 psig as delineated by the Technical Specifications for the ADS valve stroking.

3.6.2.1.2 Evaluation--Operation of these valves during power operation causes reactor pressure and power transients that could result in a reactor trip. These valves should not be exercised quarterly during power operations as the failure of one of these valves to close may result in a rapid depressurization and cooldown of the reactor vessel (loss-of-coolant accident) and a reactor trip. NUREG-0626 "Generic Evaluation of Feedwater Transients and Small Break Loss-of-Coolant Accidents in GE-Designed Operating Plants and Near Term Operating License Applications" recommends reduction of challenges to relief valves to lessen the risk of Small Break LOCA (see also NUREG-0737, Section II.K.3.16). Therefore, a reduced frequency of testing these valves is appropriate.

These valves must be exercised while the reactor is at power because reactor steam warms the valve seating surfaces and aids in preventing seat damage and leakage. These valves should not be exercised when the reactor is at low temperature and pressure during cold shutdowns because no reactor steam is available to warm them even though the valve operators are capable of cycling the valve without steam pressure. The licensee's proposal to full-stroke exercise these valves after refueling outages on the return to power operation with steam pressure greater than one hundred pounds per square inch gives adequate assurance of operational readiness and provides an acceptable level of safety.

Based on the determination that the licensee's proposed alternative test frequency gives an acceptable level of safety, relief should be granted from the exercising frequency requirements as requested.

3.6.3 Category C Valves

3.6.3.1 Relief Request. The licensee has requested relief from exercising valves 1B21-VF078B and -VF078J, main steam safety/relief valve

discharge line vacuum breakers, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise them during refueling outages.

3.6.3.1.1 Licensee's Basis for Requesting Relief--These valves are located approximately 30 ft above the nearest drywell floor level and are accessible only by building scaffolding to the valves. The transportation, erection, and dismantling of scaffolding for this purpose is too time consuming to be practical during most cold shutdown periods.

Alternate Testing: These valves will be full-stroke exercised during every refueling outage.

3.6.3.1.2 Evaluation--These steam line vacuum breaker check valves are located inside the drywell and are not equipped with operators or external position indication. Drywell access is required to manually exercise them. It is impractical to exercise these valves quarterly during power operation because the drywell is not accessible. Additionally, testing these valves requires installation of scaffolding for valve access. Disassembly and removal of the scaffolding from the drywell when testing is complete is very time consuming and could delay reactor startup, which would be costly and burdensome to the licensee. Requiring system redesign and modification to allow testing these valves in accordance with the Code test frequency requirements would be costly and burdensome to the licensee. The licensee's proposal to full-stroke exercise these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the impracticability of complying with the Code test frequency requirements and considering the licensee's proposed alternative and the burden on the licensee if the Code requirements were imposed, relief should be granted from the Code test frequency requirements as requested.

3.6.3.2 Relief Request. The licensee has requested relief from exercising the ADS accumulator air supply checks listed below closed in

accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise them during refueling outages.

Valve	Valve	Valve
1B21-VF036A	1B21-VF036L	1B21-VF036R
1B21-VF039E	1B21-VF036F	1B21-VF036M
1B21-VF039B	1B21-VF039H	1B21-VF036G
1B21-VF036N	1B21-VF039C	1B21-VF039K
1B21-VF036J	1B21-VF036P	1B21-VF039D
1B21-VF039S		

3.6.3.2.1 Licensee's Basis for Requesting Relief--Testing these valves requires access to the drywell where they are located. These is no access to the drywell during normal plant operation. Testing the valves during cold shutdown would cause the loss of high pressure core spray suction auto transfer from the condensate storage tank to the suppression pool and since suppression pool grade water is of lower quality, it is an undesirable event causing an extension of the outage due to required cleanup of the additional water. Also, any ECCS available during an outage is crucial as maintenance and testing limit the number of required ECCS available. The suppression pool level instrumentation that initiates this action is supplied air from this system. Finally, ALARA concerns are an important reason for not performing the testing during cold shutdown, i.e., up to 2 man-rem exposure is likely even after waiting 60 days for decay. The valves are closed and tested for leak tightness every refueling outage.

Alternate Testing: Leak test every refueling outage. This also verifies the valves close.

3.6.3.2.2 Evaluation--These valves cannot be exercised quarterly because the instrument air header inside the drywell must be depressurized to seat them and this could affect operation of the ADS and safety/relief valves. These valves cannot be exercised during cold shutdowns because a test gauge must be temporarily installed to monitor pressure in each of the accumulators to verify valve seating since each accumulator is not equipped with a low pressure alarm. The time required to perform this installation for each of these valves could delay reactor startup, which would be costly

and burdens ne to the licensee. Full-stroke exercising these valves during refueling outages when ample time is available to complete the testing should demonstrate proper valve operability and provides a reasonable alternative to the Code frequency requirements.

Based on the determination that complying with the Code test frequency requirements is impracticable and considering the licensee's proposed test frequency and considering the burden on the licensee if the Code test frequency requirements are imposed, relief should be granted from the Code test frequency requirements as requested.

3.7 Reactor Plant Closed Cooling Water System

3.7.1 Category A/C Valves

3.7.1.1 Relief Request. The licensee has requested relief from exercising valves 1CCP-V118, reactor plant closed cooling water containment supply check, and -V160, reactor plant closed cooling water containment return thermal relief check, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to exercise -V160 open during cold shutdowns and to verify closure of both during leak testing each refueling outage.

3.7.1.1.1 Licensee's Basis for Requesting Relief--The -V160 valve is a 3/4 in. check valve that relieves thermal pressure from between the containment penetration valves back to the containment side of the inboard isolation valve. This valve is exercised to the open position during cold shutdowns.

The -V118 valve is installed in a system not designed for testing. The safety function of this valve is to prevent containment leakage. Successful performance of the containment local leak rate test will demonstrate that this valve is performing its safety function.

Alternate Testing: The 10 CFR 50, Appendix J, leak rate test every refueling outage will verify closure.

3.7.1.1.2 Evaluation--These valves cannot be exercised quarterly during power operation because they are located in the reactor plant closed cooling water lines to and from containment. Exercising them requires interrupting the cooling water flow to the reactor recirculation pumps which could cause pump and motor overheating and damage and is impracticable. The -V160 valve can be exercised open during cold shutdowns because the pumps may be stopped, a water source will be used for testing, and no draining of the cooling water system is required. Verifying closure of both valves would be burdensome during cold shutdowns because testing requires that the system be drained to perform the local leak rate tests which may delay reactor startup due to the time required to refill and vent the system prior to returning it to service. This delay would be costly and burdensome to the licensee. The licensee's proposal to verify the closure capability of these valves each refueling outage during Appendix J leak testing gives adequate assurance of operational readiness in the closed position and provides a reasonable alternative to Code test frequency requirements.

Based on the determination that complying with the Code requirements is impracticable and considering the licensee's proposal and the burden on the licensee if these Code requirements are imposed, relief should be granted from the Code test frequency requirements as requested.

3.7.1.2 Relief Request. The licensee has requested relief from exercising valve 1CCP-V119, reactor plant closed cooling drywell supply check, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure, (its safety position) during performance of the drywell bypass leakage testing each refueling outage.

3.7.1.2.1 Licensee's Basis for Requesting Relief--The system was not designed for exercise testing of this check valve. Its safety function is to prevent drywell bypass leakage. It is located in the drywell and is inaccessible during power operation. Testing this valve during operation would shut off cooling flow to the reactor recirculation pump and motor bearings resulting in damage to both pumps and a forced shutdown as a result of Technical Specifications for loss of a reactor recirculation pump. Also, isolation of reactor plant closed cooling water to containment is required which removes the reactor water cleanup heat exchangers from service.

Successful performance of the drywell bypass leakage test will demonstrate that this valve is performing its safety function. Due to the complexity of this test requiring extensive valve tagout, lineup, and time (more than two days) to prepare for and perform, the drywell bypass leakage test, along with exercising this valve, will be performed during refueling outages. The open position is verified during normal operation of the system.

Alternate Testing: Perform the drywell bypass leakage test.

3.7.1.2.2 Evaluation--This valve cannot be exercised during power operation because it is located in the reactor plant closed cooling water supply to the reactor recirculation pump bearings. Exercising this valve requires interrupting the cooling water flow to both the pump and motor bearings and could result in damage due to overheating. Closure verification is impracticable during cold shutdowns because the system must be drained for leak testing, which could delay reactor startup due to the time required to refill and vent the system prior to returning it to service. Requiring system redesign and modification to allow testing this valve in accordance with the Code test frequency requirements would be costly and burdensome to the licensee.

Testing this valve each refueling outage provides a reasonable alternative to the Code frequency requirements. However, the drywell bypass leakage test does not adequately evaluate the condition of this valve since it does not evaluate valves individually. Since this is a Category A/C valve the licensee is required to leak test it in accordance with IWV-3420 every two years. This test adequately demonstrates the closure capability of this valve and is an acceptable test method. The licensee's test frequency provides a reasonable alternative to the Code test frequency requirements, however, relief should not be granted from the Code specified test method.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed alternate test frequency and the burden on the licensee if the Code

requirements are imposed, relief should be granted from the test frequency requirements of IWV-3521 as requested provided the licensee tests this valve in accordance with IWV-3420.

3.8 Service Water System

3.8.1 Category A/C Valves

3.8.1.1 Relief Request. The licensee has requested relief from exercising valves 1SWP-V174 and -V175, drywell coolers service water supply checks, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to verify opening during cold shutdowns and closure during leak rate testing each refueling outage.

3.8.1.1.1 Licensee's Basis for Requesting Relief--To test the check valves closed would required isolating the penetration for an extended period of time. This could prevent cooling the drywell during the test if a failure of the other service water loop occurred. During power operation, this would cause a violation of the Technical Specification temperature limits.

Testing would require isolating the supply loop to verify the valve open. This would also allow the drywell temperature to exceed its current limits since it takes both loops of supply to keep the temperature within limits. If the temperatures cannot be maintained within limits, the reactor must be shut down.

Alternate Testing: The valves are verified oper during cold shutdown if not performed within the previous 92 days as allowed by IWV-3522. The valves are verified to close by the performance of the containment local leak rate test on each valve during every refueling outage.

3.8.1.1.2 Evaluation--These check valves are in the service water supply lines to the drywell coolers. They are not equipped with external operators or position indication. The only method available to verify these valves' closure is leak testing, which the licensee has proposed to perform

during refueling outages. It is impractical to verify these valves' closure capability quarterly during power operation because service water cooling flow to the drywell cooling units cannot be interrupted without exceeding the drywell temperature limitations. It would be costly and burdensome to require the licensee to verify these valves shut during cold shutdowns because the time required to drain the headers and perform the leak testing could delay reactor startup. Also, it appears that these valves are verified open continuously by observing proper operation of the drywell cooling units in maintaining proper drywell temperatures. The licensee's proposal to verify these valves' closure capability by performance of local leak rate testing during refueling outages gives adequate assurance of operational readiness and provides a reasonable alternative to the Code frequency requirements.

Based on the determination that complying with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if these Code frequency requirements are imposed, relief should be granted from the Code test frequency requirements as requested.

3.8.2 Category A Valves

3.8.2.1 Relief Request. The licensee has requested relief from full-stroke exercising valves 1SWP-MOV503A and -MOV503B, ventilation chilled water return service water cross connections, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3411, and proposed to full-stroke exercise and stroke time them during each refueling outage.

3.8.2.1.1 Licensee's Basis for Requesting Relief--Exercising these valves during normal plant operation would result in impurities from the standby service water system being introduced into the essentially pure ventilation chilled water system. Testing during refueling will allow sufficient time to establish provisions to prevent cross contamination and/or sufficient time to restore normal water purity if cross contamination does occur.

Alternate Testing: An exercise test for these valves every refueling outage.

3.8.2.1.2 Evaluation--These valves should not be exercised without isolating the appropriate portions of each water system to prevent cross connecting the clean system with the raw water service water system. The ventilation chilled water system is maintained clean and isolated from the service water system to prevent fouling of heat transfer surfaces and equipment degradation. Exercise testing these valves is impractical to perform during power operation because the service water configuration required for testing could result in excessive drywell temperatures due to reduced service water flow. (See also Section 3.8.1.1 of this report for a discussion of drywell Technical Specification temperature limitations.) It would be burdensome to require the licensee to exercise these valves during cold shutdowns because reactor startup could be delayed while the purity of the clean ventilation chilled water system was restored if service water were to enter the chilled water system. The licensee's proposal to exercise these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code frequency requirements.

Based on the determination that complying with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if these Code frequency requirements are imposed, relief should be granted from the Code test frequency requirements as requested.

3.8.3 Category B Valves

3.8.3.1 Relief Request. The licensee has requested relief from exercising valves 1SWP-MOV510A and -MOV510B, reactor plant component cooling water service water supply cross connection, 1SWP-MOV504A and -MOV504B, reactor plant component cooling water service water return cross connection, and 1SWP-MOV502A and -MOV502B, ventilation chilled water service water supply cross connection, in accordance with the requirements of Section XI,

Paragraph IWV-3411, and proposed to full-stroke exercise and stroke time these valves during refueling outages.

3.8.3.1.1 Licensee's Basis for Requesting Relief--Exercising these valves during normal plant operation would result in impurities from the standby service water system being introduced into the essentially pure reactor plant component cooling water system and the ventilation chilled water system. Testing during refueling will allow sufficient time to establish provisions to prevent cross contamination and/or sufficient time to restore normal water purity if cross contamination does occur.

Alternate Testing: An exercise test for these valves every refueling outage.

3.8.3.1.2 Evaluation--These valves should not be exercised without isolating the appropriate portions of each water system to prevent cross connecting the clean systems with the raw water service water system. The ventilation chilled water system and reactor plant component cooling water system are maintained clean and isolated from the service water system to prevent fouling of heat transfer surfaces and equipment degradation. This testing cannot be performed during power operation because the service water configuration required for testing could result in excessive drywell temperatures due to the reduced service water flow. (See Item 3.8.1.1 for a discussion of drywell Technical Specification temperature limitations.) It would be burdensome to require the licensee to exercise these valves during cold shutdowns because reactor startup could be delayed while the purity of the clean water systems was restored if service water were to enter the clean water systems. The licensee's proposal to exercise these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code frequency requirements.

Based on the determination that complying with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements are imposed, relief should be granted from the Code test frequency requirements as requested.

3.8.3.2 Relief Request. The licensee has requested relief from exercising valves 1SWP-MOV57A and -MOV57B, standby service water supply isolations, in accordance with the frequency requirements of Section XI, Paragraph IWV-3411, and proposed to full-stroke exercise and stroke time these valves during refueling outages.

3.8.3.2.1 Licensee's Basis for Requesting Relief--Closing MOV57A/B without operating standby service water in advance would cause an automatic initiation (ESF) of standby service water. Operating Division I standby service water at power is likely to cause a main steam isolation valve (MSIV) isolation on high HVAC delta T due to the sudden inrush of cold water to the unit cooler for the main steam tunnel from the standby cooling tower.

Alternate Testing: An exercise test for each valve during every refueling outage.

3.8.3.2.2 Evaluation--It is impractical to full-stroke exercise valves 1SWP-MOV57A and -MOV57B quarterly during power operation since this could cause MSIV closure and a plant shutdown. The licensee has also stated that operating these valves without operating the standby service water system in advance would result in ESF of standby service water. However, the licensee has not shown that the standby service water system cannot be operated in advance of testing these valves during cold shutdowns. And, whereas, the licensee has shown that it is impractical to exercise these valves quarterly during operation a determination cannot be made from the information provided that it is impracticable to exercise these valves each cold shutdown.

It appears that testing these valves renders a residual heat removal loop inoperable, however, this alone is not sufficient technical justification for not testing valves in accordance with Section XI. Additionally, the licensee's Technical Specifications state that a shutdown cooling loop may be made inoperable for up to two hours for surveillance testing provided the other loop is operable.

Since the licensee has not demonstrated the impracticability of testing these valves during cold shutdowns in accordance with the requirements of Section XI, relief should not be granted as requested. The licensee should full-stroke exercise and stroke time these valves during cold shutdowns and refueling outages or provide justification for not doing so in the form of a relief request that must subsequently be reviewed and approved before implementation.

3.8.4 Category C Valves

3.8.4.1 Relief Request. The licensee has requested relief from exercising valves 1SWP-V326 and -V327, standby service water supply header checks, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise them during refueling outages.

3.8.4.1.1 Licensee's Basis for Requesting Relief--Check valves V326 and V327 are verified open by normal plant operations. In order to test these valves closed it is necessary to secure the normal service water loop resulting in the shutdown of essential equipment for the safe operation of the plant, such as instrument air. As a minimum, this requires supplying a temporary backup air compressor. In most shutdowns it would also be necessary to supply a temporary means of cooling the condensate pump which would be in service for reactor pressure vessel (RPV) level control.

In a short shutdown these activities would be too expensive and difficult to set up. In a refueling outage, these items are prearranged and can be carried out without undue risk to the plant or public.

Closing MOV57A/B without operating standby service water in advance would cause an automatic initiation (ESF) of standby service water. Operating Division I standby service water at power is likely to cause an main steam isolation valve (MSIV) isolation on high HVAC delta T due to the sudden inrush of cold water to the unit cooler for the main steam tunnel from the standby cooling tower.

Alternate Testing: An exercise test for each valve during every refueling outage.

3.8.4.1.2 Evaluation--The licensee has not identified the specific equipment that would be affected while standby service water supply header check valves 1SWP-V326 and -V327 are tested quarterly nor described the negative consequences of that testing. However, the system P&IDs provided with the IST program show these valves located in the normal service water supply headers to the drywell cooling units. Due to their location in the system, exercising these valves during power operation could result in drywell temperatures exceeding the Technical Specification limits and a plant shutdown would be required, which would be costly and burdensome to the licensee. Verifying closure of these valves requires isolating the service water loop and establishing a reverse differential pressure across these valves. During the test an alternative cooling supply is needed for affected components, such as the instrument air compressors. This test is impractical to perform during cold shutdown. The licensee's proposal to exercise these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that complying with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements are imposed, relief should be granted from the Code test frequency requirements as requested.

3.8.4.2 Relief Request. The licensee has requested relief from exercising valves 1SWP-V203 and -V204, ventilation chilled water service water cross connection checks, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise these valves during refueling outages.

3.8.4.2.1 Licensee's Basis for Requesting Relief--Exercising these valves during normal plant operation would result in impurities from the standby service water system being introduced into the essentially pure ventilation chilled water system. Testing during refueling will allow

sufficient time to establish provisions to prevent cross contamination and/or sufficient time to restore normal water purity if cross contamination does occur.

Alternate Testing: An exercise test for these valves every refueling outage.

3.8.4.2.2 Evaluation--These valves provide an alternate source of ventilation cooling water. It is impractical to exercise these valves without valving out the appropriate portions of each system to prevent cross connecting the clean system with the chemically-contaminated raw water service water system. The ventilation chilled water system is maintained clean, and isolated from the service water system to prevent fouling and corrosion of heat transfer surfaces and equipment degradation, which would be costly and burdensome for the licensee. This testing is impractical to perform during power operation because the service water configuration required for this testing could result in excessive drywell temperatures due to the reduced service water flow and cause a plant shutdown. (See Item 3.8.1.1 for a discussion of drywell Technical Specification temperature limitations).

It would be costly and burdensome to require the licensee to exercise these valves during cold shutdowns because reactor startup could be delayed while the purity of the clean ventilation chilled water system was restored if service water were to enter the chilled water system. The licensee's proposal to exercise these valves during refueling outages gives adequate assurance of operational readiness and provides a reasonable alternative to the Code frequency requirements.

Based on the determination that compliance with the Code requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code frequency requirements were imposed, relief should be granted from the exercising frequency requirements of Section XI as requested.

3.8.4.3 Relief Request. The licensee has requested relief from exercising valves 1SWP-V133 and -V136, diesel generator service water supply header checks, and 1SWP-V143 and -V144, diesel generator service water return header checks, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise these valves each refueling outage.

3.8.4.3.1 Licensee's Basis for Requesting Relief--The exercise testing of these valves during normal operation could require isolation of a service water loop resulting in the shutdown of essential equipment for the safe operation of the plant. The exercise testing of these valves during cold shutdown could require a residual heat removal loop to be inoperable which would result in a Technical Specification Limiting Condition for Operation.

Emergency service water for the diesel generators does not flow through V327 and V326. MOV57A and MOV57B close to prevent backflow of standby service water into normal service water for redundancy, therefore, they are not within the scope of IE Bulletin No. 83-03 as noted by Required Action No. 1 in the bulletin.

Testing the other valves causes a major negative impact on the service water system and loads which cannot be adequately cooled without service water.

Safety-related equipment will be made inoperative by isolation of one of the service water loops such as diesel generators, control rod drive pumps, fuel pool heat exchangers, drywell coolers, reactor plant component cooling heat exchangers, one loop of residual heat removal when the heat exchangers lose cooling water, control building loop of unit coolers will be lost due to isolation of the water chillers supply, auxiliary building unit coolers loop will be lost from cooling water isolation. Also a loop of standby gas treatment, penetration valve leakage control, and main steam isolation valve leakage control air compressors. Each will require Limiting Conditions for Operation.

Alternative Testing: An exercise test for each valve during every refueling outage.

3.8.4.3.2 Evaluation--These valves have a safety function in both the open and closed positions to allow operating either or both service water supply headers while simultaneously providing isolation between the two headers. Due to system design and cooling requirements, these valves should not be exercised during power operation because that would upset equipment cooling throughout the entire service water system and could result in a plant shutdown due to drywell temperatures exceeding the Technical Specification limits.

The licensee has stated that multiple Limiting Conditions for Operation must be entered to exercise these valves but has not explained which restrictions apply during the various plant operating modes except that removing a residual heat removal loop from service during cold shutdown requires entering a LCO. As stated in this report (Item 3.8.3.2), having to enter a Limiting Condition for Operation is not sufficient technical justification for not testing valves in accordance with Section XI. However, due to the magnitude of equipment affected, manpower requirements, and length of time needed to shift all affected equipment from one service water header to the other, it would be burdensome to require the licensee to perform this test during cold shutdowns because reactor startup could be delayed. Full-stroke exercising these valves during refueling outages when ample time is available to align the affected systems should demonstrate proper valve operability and provides a reasonable alternative to the Code test frequency requirements.

Based on the determination that compliance with the Code requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code frequency requirements were imposed, relief should be granted from the exercising frequency requirements of Section XI as requested.

3.9 Service and Breathing Air System

3.9.1 Category A/C Valves

3.9.1.1 Relief Request. The licensee has requested relief from exercising valve 1SAS-V486, containment service air supply check, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (its safety position) during leak testing each refueling outage.

3.9.1.1.1 Licensee's Basis for Requesting Relief--This system is not designed for exercise testing of this check valve. The safety function of this valve is to prevent containment leakage. Successful performance of the containment local leak rate test will demonstrate that the valve is performing its function.

Alternate Testing. Perform a containment local leak rate test on this valve every refueling outage.

3.9.1.1.2 Evaluation--This is a simple check valve in the service air supply line to containment. It is located inside containment and is not equipped with an external operator or position indication. The only method available to verify closure of this valve is to establish a pressure differential across it and to perform a leak test. It is impractical to perform this test during power operation since this requires securing air to containment and the hookup of special test equipment. Performing this test during cold shutdown could result in delaying the return to power which would be costly and burdensome to the licensee. Installation of position indication would require system redesign and modifications, which would be expensive and burdensome to the licensee. This valve is subjected to an Appendix J, Type C, leak rate test during refueling outages, which gives adequate assurance of operational readiness and provides a reasonable alternative to the Code test frequency requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposal and

the burden on the licensee if the Code requirements were imposed, relief should be granted from the Code test frequency requirements as requested.

3.10 Instrument Air System

3.10.1 Category A/C Valves

3.10.1.1 Relief Request. The licensee has requested relief from exercising valve 1IAS-V80, containment instrument air supply check, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (its safety position) during leak testing each refueling outage.

3.10.1.1.1 Licensee's Basis for Requesting Relief--This system is not designed for exercise testing of this check valve. The safety function of this valve is to prevent containment leakage. Successful performance of the containment local leak rate test will demonstrate that the valve is performing its function.

Alternate Testing. Perform a containment local leak rate test on this valve every refueling outage.

3.10.1.1.2 Evaluation--This is a simple check valve in the instrument air supply line to containment. It is located inside containment and is not equipped with an external operator or position indication. The only method available to verify closure of this valve is to establish a pressure differential across it and to perform a leak test. It is impractical to perform this test during power operation since this requires securing air to containment and the hookup of special test equipment. Performing this test during cold shutdown could result in delaying the return to power which would be costly and burdensome to the licensee. Installation of position indication would require system redesign and modifications, which would be expensive and burdensome to the licensee. This valve is subjected to an Appendix J, Type C, leak rate test during refueling outages, which gives adequate assurance of operational readiness

and provides a reasonable alternative to the Code test frequency requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements were imposed, relief should be granted from the Code test frequency requirements as requested.

3.10.1.2 Relief Request. The licensee has requested relief from exercising valve 1IAS-V78, drywell instrument air supply check, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (its safety position) during performance of the drywell bypass leakage testing each refueling outage.

3.10.1.2.1 Licensee's Basis for Requesting Relief--The system was not designed for exercise testing of this check valve. Its safety function is to prevent drywell bypass leakage. It is located in the drywell and is inaccessible during power operation. Successful performance of the drywell bypass leakage test will demonstrate that this valve is performing its safety function. Due to the complexity of this test requiring extensive valve tagout, lineup, and time (more than two days) to prepare for and perform, the drywell bypass leakage test, along with exercising this valve, will be performed during refueling outages. The open position is verified during normal operation of the system.

Alternate Testing: Perform the drywell bypass leakage test.

3.10.1.2.2 Evaluation--This check valve is in the drywell instrument air supply line. This is a simple check valve without an external operator or position indication. The only practical method for exercising this valve closed is leak testing, which requires isolating the system and establishing a reverse differential pressure across the valve. It is impractical to exercise this valve closed during power operation since the drywell is inaccessible. Significant system redesign would be necessary to allow quarterly testing of these valves in the closed position, which would be costly and burdensome to the licensee.

Testing these valves each refueling outage provides a reasonable alternative to the Code frequency requirements. However, the drywell bypass leakage test does not adequately evaluate the condition of these valves since it does not evaluate these valves individually. Since these are Category A/C valves the licensee is required to leak test these valves in accordance with IWV-3420 every two years. This test adequately demonstrates the closure capability of this valve and is an acceptable test method. The licensee's test frequency provides a reasonable alternative to the Code test frequency requirements, however, relief should not be granted from the Code specified test method.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed alternate test frequency and the burden on the licensee if the Code requirements are imposed, relief should be granted from the test frequency requirements of IWV-3521 as requested provided the licensee tests this valve in accordance with IWV-3420.

3.11 Standby Liquid Control System

3.11.1 Category A/C Valves

3.11.1.1 Relief Request. The licensee has requested relief from exercising valves 1C41-VF006 and -VF007, standby liquid control (SLC) injection checks, open and closed in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise them during refueling outages.

11.1.1.1 Licensee's Basis for Requesting Relief--1C41-VF007 and a test valve for 1C41-VF006 are located in the drywell and are inaccessible during normal operation.

In order to verify that check valve -VF006 is closed requires that the manual isolation valve located in the drywell be closed. In order to test both check valves open during operation would render one of the loops of SLC

inoperative which would require a reactor shutdown within seven (7) days for loss of one loop and eight (8) hours for loss of both loops.

Testing these valves open during operation would require injecting cold water into the vessel causing unnecessary thermal stress to the reactor vessel and internals. SLC would be inoperative for at least several hours.

The valves cannot be tested open during cold shutdown because injecting flow through the test valves does not verify full flow without using the standby liquid control pumps. Procedures using the pumps could delay a startup. These valves cannot be tested closed during operation because the test connections are located in the drywell and are inaccessible.

Alternate Testing: An exercise test for each valve during refueling outages as part of the associated SLC injection test.

3.11.1.1.2 Evaluation--These valves are in the injection lines from the SLC pumps to the reactor system. It is impractical to exercise them open or closed during power operation. The only method available to exercise them open is with system flow, which would result in injecting boron solution into the reactor vessel and would result in a reactor shutdown. Closure verification requires establishing a reverse differential pressure across these valves and performing a leak test. This entails closure of a valve inside the drywell, which is inaccessible. The SLC system cannot be removed from service for flushing during power operation due to Technical Specifications requirements. It is impractical to exercise these valves during cold shutdown because extensive flushing is required to remove all traces of the boron solution to prevent its entry into the reactor coolant system. Additionally, one of the in-line explosive valves must be removed or fired to provide a flow path. The licensee's proposal to exercise these valves each refueling outage during the SLC injection test gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed

alternate test frequency and considering the burden on the licensee if the Code requirements are imposed, relief should be granted from the test frequency requirements as requested.

3.12 Residual Heat Removal System

3.12.1 Category A/C Valves

3.12.1.1 Relief Request. The licensee has requested relief from exercising valve 1RHS-V240, residual heat removal shutdown cooling suction thermal relief check, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise this valve during refueling outages.

3.12.1.1.1 Licensee's Basis for Requesting Relief--The exercise testing of this valve during normal operation is not possible since it is in the drywell. The operability testing of this valve during cold shutdown is not practical since it would require both RHR shutdown cooling systems to be inoperable. With the RHR system inoperable, another source of decay heat removal must be demonstrated capable of removing the decay heat. This would require a minimum of two weeks in the cold shutdown mode for another system to perform this function after a normal power operation period.

Alternate Testing: An exercise test during every refueling outage when there is greater than 23 ft of water over the reactor pressure vessel flange.

3.12.1.1.2 Evaluation--It is impractical to exercise this valve closed quarterly during power operation or during cold shutdowns. This small check valve and one of the required test connections are located inside the drywell and are inaccessible during power operation. This valve is not equipped with an external operator or position indication. The only method available to verify exercising this valve is leak testing. To leak rate test this valve the shutdown cooling header must be removed from service and drained. This test method could delay reactor startup due to

the length of time required to drain the header and process the water through the radwaste system, which would be costly and burdensome to the licensee.

The plant Technical Specifications define the operational modes during which both loops of shutdown cooling may be made inoperable, i.e., only during refueling outages and then only when there is a minimum depth of water above the open reactor vessel to provide a heat sink and an iodine scrubbing mechanism in case of a leaking fuel element. The licensee's proposal to exercise this valve closed each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed alternate test frequency and considering the burden on the licensee if the Code requirements are imposed, relief should be granted to test this valve each refueling outage.

3.12.2 Category C Valves

3.12.2.1 Relief Request. The licensee has requested relief from exercising valves 1E12-VF050A and -VF050B, shutdown cooling return header checks, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise these valves open when the associated residual heat removal loop is placed in operation and to verify closure during refueling outages.

3.12.2.1.1 Licensee's Basis for Requesting Relief--The RHR system head is inadequate to open the valves against feedwater operating pressure. The valves are opened when the RHR system is placed into the shutdown cooling (SDC) mode during plant shutdowns. To verify the valves close during plant shutdowns would require the SDC loop of the RHR system to be made inoperable.

Technical Specification 3.4.9.2 requires two (2) loops of SDC to be available or at least one alternate available for each inoperable loop. Because of decay heat, it requires at least 30 days for an alternate method such as RWCU or fuel pool cooling to be able to handle the existing heat loads for SDC. During refueling outages, this requirement is reduced to one loop of SDC when the Technical Specification does permit one loop to be made inoperable for up to 2 hours for testing. However, because of the difficulty and the time required in performing this test using hoses connected for drain down of the column of water beneath the valve in order to verify disk closure, operations personnel will not permit this testing as a conservative measure.

This test cannot be accomplished with the loop in SDC. In addition, a significant volume of contaminated water is released to radwaste. Finally, since the drain hub is located in a high radiation area for the VF050A valve connections are also located in high radiation areas and contamination zones during outages as a result of SDC, significant radiation exposure can be received.

Alternate Testing: The valves are confirmed open each time the associated RHR loop is placed into the normal shutdown cooling mode during reactor shutdown. The valves are confirmed to close during every refueling outage.

3.12.2.1.2 Evaluation--These check valves cannot be exercised open during power operation because the only flow path is into the reactor feedwater headers and the residual heat removal pumps do not develop sufficient discharge pressure to overcome feedwater pressure. These valves can be full-stroke exercised open during cold shutdowns because they are located in the shutdown cooling return flow path. However, it is impractical to verify closure of these valves during cold shutdowns because this requires draining of a portion of the affected SDC loop to backseat the valve and results in high radiation exposure to personnel.

Additionally, the time involved performing this test may exceed the licensee's two hour Technical Specification Limiting Condition for Operation, which requires taking action to return the affected loop to operable status immediately. System redesign and modifications would be required to allow testing these valves closed quarterly or during cold shutdowns. This would be expensive and burdensome to the licensee. The licensee's proposal to exercise these valves open each cold shutdown and to verify the reverse flow closure capability of these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that it is impracticable to test these valves closed during cold shutdowns and considering the burden on the licensee if the Code test frequency requirements were imposed and the licensee's proposed test frequency, relief should be granted to verify these valves open during cold shutdowns and closed during refueling outages.

3.13 Fire Protection Water System

3.13.1 Category A/C Valves

3.13.1.1 Relief Request. The licensee has requested relief from exercising valve 1FPW-V263, containment fire protection water supply check, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (its safety position) during leak testing each refueling outage.

3.13.1.1.1 Licensee's Basis for Requesting Relief--This system is not designed for exercise testing of this check valve. The safety function of this valve is to prevent containment leakage. Successful performance of the containment local leak rate test will demonstrate that the valve is performing its function.

Alternate Testing: Perform a containment local leak rate test on this valve every refueling outage.

3.13.1.1.2 Evaluation--This is a simple check valve in the fire protection water supply line to containment. It is located inside containment and is not equipped with an external operator or position indication. The only method available to verify closure of this valve is to establish a pressure differential across it and to perform a leak test. It is impractical to perform this test during power operation since this requires securing air to containment and the hookup of special test equipment. Performing this test during cold shutdown could result in delaying the return to power which would be costly and burdensome to the licensee. Installation of position indication would require system redesign and modifications, which would be expensive and burdensome to the licensee. Performance of an Appendix J, Type C, leak rate test on this valve during refueling outages gives adequate assurance of operational readiness and provides a reasonable alternative to the Code test frequency requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements were imposed, relief should be granted from the Code test frequency requirements as requested.

3.14 MSIV and Penetration Valve Leakage Control System

3.14.1 Category C Valves

3.14.1.1 Relief Request. The licensee has requested relief from exercising the MSIV and penetration valve leakage control system header check valves listed below in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to full-stroke exercise them during refueling outages.

Valve	Valve	Valve
1LSV-V12	1LSV-V30	1LSV-V50
1LSV-V18	1LSV-V32	1LSV-V52
1LSV-V20	1LSV-V35	1LSV-V54
1LSV-V22	1LSV-V36	1LSV-V56
1LSV-V24	1LSV-V42	1LSV-V58
1LSV-V26	1LSV-V46	1LSV-V60
1LSV-V28	1LSV-V48	1LSV-V62
1LSV-V72	1LSV-V76	1LSV-V80

3.14.1.1.1 Licensee's Basis for Requesting Relief--The pressure of the PVLCS air supply is not capable of exercising the check valves against the normal system pressure for the associated containment isolation valve. PVLCS is designed to perform its seal function when the pressure in the systems is the same or less than the containment pressure after an accident. The performance of the test during cold shutdown would result in the loss of some systems that are required to maintain the plant in cold shutdown.

The following are some of the systems affected:

Main steam
Reactor water cleanup
Condensate makeup and transfer
Service air - containment and drywell
Instrument air - containment and drywell
Feedwater - containment and drywell
Fire protection - containment
HVAC - chilled water

The consequences would be:

Service Air - loss of all containment and drywell air outlets used for breathing and service.

Feedwater - Requires shutdown of reactor water cleanup and residual heat removal shutdown cooling to isolate system pressure from MOV7A. This would require alternate shutdown cooling which is much more limited in the amount of decay heat it can remove.

Fire protection - This requires isolation of all hose racks in the containment which requires stationing fire watches and running hoses through air locks.

HVAC (chilled water) - Lengthy isolation of unit coolers in containment would contaminate chilled water with service water which requires clean up.

Reactor water cleanup - Requires isolation of letdown and normal cleanup flow which will cause degradation of reactor chemistry.

Condensate transfer and storage - Isolates system to containment preventing makeup capability to the suppression pool, reactor water cleanup, and flushing for residual heat removal and standby liquid control.

These valves are tested as an entire division to prove system operability. Partial (individual) testing is not valid.

Alternate Testing: An exercise test for each valve during every refueling outage.

3.14.1.1.2 Evaluation--These small check valves are not equipped with position indication and the only method available to verify that the disk changes position is to establish flow through them. It is impractical to exercise these valves during power operation or cold shutdowns because the interfacing systems must be depressurized and possibly drained so the check valve motion can be verified without creating a personnel hazard due to pressure, temperature, or contamination. In most cases, this is practical only during refueling outages and it would be burdensome to require the licensee to perform this testing quarterly or during cold shutdowns to verify valve closure. The licensee's proposal to exercise these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements were imposed, relief should be granted from the Code test frequency requirements as requested.

3.15 Diesel Generator Air Start System

3.15.1 Category B Valves

3.15.1.1 Relief Request. The licensee has requested relief from measuring the stroke time of valves 1EGA-SOVX11A, -SOVX11B, -SOVY11A, and -SOVY11B, standby diesel generator air start solenoids, and 1CSH-SOV234 and -SOV247, high pressure core spray diesel generator air start solenoids, in accordance with the requirements of Section XI, Paragraph IWV-3413(a), and proposed to measure diesel generator start time to monitor valve degradation.

3.15.1.1.1 Licensee's Basis for Requesting Relief--ASME Code test requirements are not applicable for these non-ASME solenoid valves. As these solenoid valves open during the start cycle, which can be measured by

observing changes in system pressure, the closing cycle is difficult to verify using this test method. Therefore, the verification of opening will be verified by the engine obtaining rated speed and acceptance of the required load within the time specified by the Technical Specifications. The pressure in the air start tanks is then verified in order to confirm that the valves did indeed close.

Alternate Testing: Verify the valves stroke open by verifying that the engine obtains rated speed and accepts its required load within the specified time required by the Technical Specifications. The pressures of the air start tanks are then verified in order to confirm that the solenoid valves have stroked closed.

3.15.1.1.2 Evaluation--These valves are totally enclosed solenoid operated valves which have no externally visible indication of valve position. It is impracticable to directly measure the stroke times of these solenoid operated valves because there is no way to determine when a valve receives a signal to open or when it reaches the open position. Additionally, these solenoid valves are rapid-acting valves which normally stroke almost instantly and when they do not operate promptly, they most commonly fail to operate at all.

These valves function to admit starting air to the diesel generator, therefore, valve opening can be indirectly verified by monitoring the diesel generator start times to insure that the diesel starts within the Technical Specification limit. Measuring the diesel start times gives an indication of possible valve degradation since any significant change in valve stroke time would result in longer diesel generator start times. Additionally, the licensee will verify that both parallel valves have opened and reclosed by measuring starting air tank pressures.

Valve full-stroke times cannot be measured unless significant system modifications are made to permit this testing. It would be burdensome for the licensee to make such modifications because of the time and expense involved and the limited amount of additional information that would be provided. Compliance with the Code required testing method is impractical

due to the system design. The licensee's proposal to verify operability of th[illegible] valves indirectly by diesel generator start times gives adequate a[illegible]rance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the impracticability of complying with the Code required testing method and considering the licensee's proposed testing method and the burden on the licensee if the Code requirements are imposed, relief may be granted from the Code requirements as requested.

3.16 HVAC System - Containment Building

3.16.1 Category A Valves

3.16.1.1 Relief Request. The licensee has requested relief from leak testing valves 1HVR-A0V123 and -A0V165, containment purge supply, and -A0V128 and -A0V166, containment purge exhaust, in accordance with the requirements of Section XI, Paragraphs IWV-3421 through -3427, and proposed to conduct the leak testing of these valves in accordance with the requirements of the Technical Specifications.

3.16.1.1.1 Licensee's Basis for Requesting Relief--Containment purge valves are tested pursuant to 10 CFR 50, Appendix J, and Technical Specifications 3/4.6.1.3 and 3/4.6.1.9. The Technical Specifications involved with these components are very specific on allowable leak rates and, as such, the leak rate criteria is very strict. River Bend tests these valves on a frequency of 92 days. These valves are of a resilient seat material and considered to be a reliable design.

Due to the quarterly test frequency, the testing of these valves must be considered to be much more conservative than is required by IWV-3422 through -3427. Since the test frequency is already increased as required by the Technical Specification, increasing the test frequency as required by IWV-3427 would be redundant and unnecessary. The intent of increased testing in IWV-3427 is already satisfied by the Technical Specification.

Leak rate criteria for these 36 inch resilient seat valves is a maximum of 8.67 scfd for the inlet valves and $0.01L_a$ or 56.86 scfd for the outlet valves.

Alternate Testing: Conduct purge valve leak testing per Technical Specifications 3/4.6.1.3 and 3/4.6.1.9.

3.16.1.1.2 Evaluation--These valves are leak rate tested following each full-stroke exercise test that is conducted quarterly. Also, specific individual leakage limits have been assigned with corrective action required by the Technical Specifications if those limits are exceeded. The licensee's proposal is in agreement with IWV-3426 because leakage limits have been specified, with -3427(a) because corrective action is required by the Technical Specifications, and with IWV-3427(b) because the proposed leak test frequency exceeds the increased frequency that is required as part of the corrective action.

The licensee's proposal is in accordance with the guidance presented in GL 89-04, Attachment 1, Position 10, which provides a reasonable alternative to the Code requirements, therefore, relief should be granted as requested.

3.17 HVAC System - Chilled Water

3.17.1 Category A/C Valves

3.17.1.1 Relief Request. The licensee has requested relief from exercising valves 1HVN-V541, containment chilled water supply check, and -V1316, containment chilled water return thermal relief check, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (their safety position) during leak testing each refueling outage.

3.17.1.1.1 Licensee's Basis for Requesting Relief--This system is not designed for exercise testing of these check valves. The safety function of the valves is to prevent containment leakage. Successful performance of the containment local leak rate test will demonstrate that the valves are performing their function.

Alternate Testing: Perform a containment local leak rate test on these valves every refueling outage.

3.17.1.1.2 Evaluation--These are simple check valves located inside containment. They are not equipped with external operators or position indication. Installation of position indication would require system redesign and modifications, which would be expensive and burdensome to the licensee. The only method available to verify closure of these valves is to establish a pressure differential across them and to perform a leak test. Testing these valve requires entry into containment reconfiguring the system and hook up of special test equipment, which is impractical to perform quarterly during power operation. Performing this test during cold shutdowns could result in delaying the return to power which would be costly and burdensome to the licensee. Leak rate testing these valves each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code frequency requirements is impracticable and considering the burden on the licensee if the Code requirements are imposed and the licensee's proposed test frequency, relief should be granted as requested.

3.18 Containment Atmosphere and Leakage Monitoring System

3.18.1 Category A/C Valves

3.18.1.1 Relief Request. The licensee has requested relief from exercising valves 1CMS-V40 and -V41, drywell atmosphere sample return checks, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (their safety position) during performance of the drywell bypass leakage testing each refueling outage.

3.18.1.1.1 Licensee's Basis for Requesting Relief- The system was not designed for exercise testing of these check valves. Their safety function is to prevent drywell bypass leakage. Successful performance of the drywell bypass leakage test will demonstrate that these valves are

performing their safety function. Due to the complexity of this test requiring extensive valve tagout, lineup, and time (more than two days) to prepare for and perform, the drywell bypass leakage test, along with exercising these valves, will be performed during refueling outages. The open position is verified during normal operation of the system.

Alternate Testing: Perform the drywell bypass leakage test.

3.18.1.1.2 Evaluation--These are check valves in the drywell atmosphere sample return line. They are simple check valves without external operators or position indication. The only practical method for exercising these valves closed is leak testing, which requires establishing a reverse differential pressure across the valve. It is impractical to exercise these valves closed during power operation since the drywell is inaccessible. Significant system redesign would be necessary to allow quarterly testing of these valves in the closed position, which would be costly and burdensome to the licensee. Additionally, performing this test during cold shutdowns would require the shutdown of the reactor recirculation pumps and could result in delaying the return to power which would be costly and burdensome to the licensee.

Testing these valves each refueling outage provides a reasonable alternative to the Code frequency requirements. However, the drywell bypass leakage test does not adequately evaluate the condition of these valves since it does not evaluate these valves individually. Since these are Category A/C valves the licensee is required to leak test these valves in accordance with IWV-3420 every two years. This test adequately demonstrates the closure capability of these valves and is an acceptable test method. The licensee's test frequency provides a reasonable alternative to the Code test frequency requirements, however, relief should not be granted from the Code specified test method.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed alternate test frequency and the burden on the licensee if the Code

requirements are imposed, relief should be granted from the test frequency requirements of IWV-3521 as requested provided the licensee tests these valves in accordance with IWV 3420.

3.19 Fuel Pool Cooling System

3.19.1 Category A/C Valves

3.19.1.1 Relief Request. The licensee has requested relief from exercising valve 1SFC-V101, fuel pool cooling return containment isolation check, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (its safety position) during leak testing each refueling outage.

3.19.1.1.1 Licensee's Basis for Requesting Relief--This system is not designed for exercise testing of this check valve. The safety function of this valve is to prevent containment leakage. Successful performance of the containment local leak rate test will demonstrate that this valve is performing its function.

Alternate Testing: Perform a containment local leak rate test on this valve every refueling outage.

3.19.1.1.2 Evaluation--This is a simple check valve in the fire protection water supply line to containment. It is impractical to exercise this valve during power operation since it is located inside containment and is not equipped with an external operator or position indication. The only method available to verify closure of this valve is to establish a pressure differential across it and to perform a leak test. Installation of position indication would require system redesign and modifications, which would be expensive and burdensome to the licensee. Performance of an Appendix J, Type C, leak rate test during refueling outages gives adequate assurance of operational readiness and provides a reasonable alternative to the Code test frequency requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code requirements were imposed, relief should be granted from the Code test frequency requirements as requested.

3.19.1.2 Relief Request. The licensee has requested relief from exercising valves 1SFC-V350 and -V351, upper containment fuel pool pump suction thermal relief checks, in accordance with the test frequency requirements of Section XI, Paragraph IWV-3521, and proposed to exercise them open quarterly and verify closure during each refueling outage.

3.19.1.2.1 Licensee's Basis for Requesting Relief--These are 3/4 inch check valves which relieve thermal pressure from between the containment penetration valves back to the containment side of the inboard isolation valve and are exercised open quarterly. The valve leak rate test provides absolute verification the valve closes.

Alternate Testing: The 10 CFR 50, Appendix J, leak rate test every refueling outage will verify closure.

3.19.1.2.2 Evaluation--These valves are simple checks in the upper fuel pool pump suction lines. They open to relieve thermal pressure and close for containment isolation. These valves are not equipped with external operators or position indicators. The only way to verify reverse flow closure of these valves is to establish reverse differential pressure and leak test the valves. This is impractical to perform quarterly during operation or during cold shutdowns. Installation of position indicators or test operators would require system redesign and modification, which would be costly and burdensome to the licensee. The licensee's proposal to verify the closure capability of these valves during Appendix J leak rate testing each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code frequency requirements were imposed, relief should be granted as requested.

3.20 Floor and Equipment Drain System

3.20.1 Category A/C Valves

3.20.1.1 Relief Request. The licensee has requested relief from exercising valves 1DFR-V1, -V2, -V3, and -V4, drywell floor drain sump inlet checks, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (their safety position) during performance of the drywell bypass leakage testing each refueling outage.

3.20.1.1.1 Licensee's Basis for Requesting Relief. The system was not designed for exercise testing of these check valves. Their safety function is to prevent drywell bypass leakage. Successful performance of the drywell bypass leakage test will demonstrate that these valves are performing their safety function. Due to the complexity of this test requiring extensive valve tagout, lineup, and time (more than two days) to prepare for and perform, the drywell bypass leakage test, along with exercising these valves, will be performed during refueling outages. The open position is verified during normal operation of the system.

Alternate Testing: Perform the drywell bypass leakage test.

3.20.1.1.2 Evaluation--These are check valves in the drywell floor drain sump inlet lines. They are series check valves (DFR*V1 & V2 in series and DFR*V3 & V4 in series) without intermediate test taps. There is no practical method for individually exercising these valves closed. The only practical method for exercising these valves closed is leak testing the pair, which requires establishing a reverse differential pressure across the valve pair. It is impractical to perform this test during power operation since the drywell is inaccessible. Significant system redesign would be necessary to allow quarterly testing of these valves in the closed position, which would be costly and burdensome to the licensee. Additionally, performing this test during cold shutdowns could result in delaying the return to power which would be costly and burdensome to the licensee.

Testing these valves each refueling outage provides a reasonable alternative to the Code frequency requirements. However, the drywell bypass leakage test does not adequately evaluate the condition of the valve pair since it does not evaluate the pair individually. Since these are Category A/C valves the licensee is required to leak test these valves in accordance with IWV-3420 every two years. This test can adequately demonstrate the closure capability of the valve pair and is an acceptable test method. If there is evidence of excessive leakage through the pair both valves should be repaired or replaced prior to return to service. The licensee's test frequency provides a reasonable alternative to the Code test frequency requirements and testing these valves as a pair in accordance with IWV-3420 provides an acceptable alternative to the Code method requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed alternate test frequency and the burden on the licensee if the Code requirements are imposed, relief should be granted from the test frequency requirements of IWV-3521 as requested, provided the licensee tests this valve pair in accordance with IWV-3420.

3.20.1.2 Relief Request. The licensee has requested relief from exercising valves 1DER-V14, -V15, -V16, and -V17, drywell equipment drain sump inlet checks, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to verify closure (their safety position) during performance of the drywell bypass leakage testing each refueling outage.

3.20.1.2.1 Licensee's Basis for Requesting Relief. The system was not designed for exercise testing of these check valves. Their safety function is to prevent drywell bypass leakage. Successful performance of the drywell bypass leakage test will demonstrate that these valves are performing their safety function. Due to the complexity of this test requiring extensive valve tagout, lineup, and time (more than two days) to prepare for and perform, the drywell bypass leakage test, along with exercising these valves, will be performed during refueling outages. The open position is verified during normal operation of the system.

Alternate Testing: Perform the drywell bypass leakage test.

3.20.1.2.2 Evaluation--These are check valves in the drywell equipment drain sump inlet lines. They are series check valves (DFR*V14 & V15 in series and DFR*V16 & V17 in series) without intermediate test taps. There is no practical method for individually exercising these valves closed. The only practical method for exercising these valves closed is leak testing the pair, which requires establishing a reverse differential pressure across the valve pair. It is impractical to perform this test during power operation since the drywell is inaccessible. Significant system redesign would be necessary to allow quarterly testing of these valves in the closed position, which would be costly and burdensome to the licensee. Additionally, performing this test during cold shutdowns could result in delaying the return to power which would be costly and burdensome to the licensee.

Testing these valves each refueling outage provides a reasonable alternative to the Code frequency requirements. However, the drywell bypass leakage test does not adequately evaluate the condition of the valve pair since it does not evaluate the pair individually. Since these are Category A/C valves the licensee is required to leak test these valves in accordance with IWV-3420 every two years. This test can adequately demonstrate the closure capability of the valve pair and is an acceptable test method. If there is evidence of excessive leakage through the pair both valves should be repaired or replaced prior to return to service. The licensee's test frequency provides a reasonable alternative to the Code test frequency requirements nd testing these valves as a pair in accordance with IWV-3420 provides an acceptable alternative to the Code method requirements.

Based on the determination that compliance with the Code test frequency requirements is impracticable and considering the licensee's proposed alternate test frequency and the burden on the licensee if the Code requirements are imposed, relief should be granted from the test frequency requirements of IWV-3521 as requested, provided the licensee tests this valve pair in accordance with IWV-3420.

3.20.1.3 Relief Request. The licensee has requested relief from exercising valve 1DER-V4, drywell and containment equipment dr n sumps discharge th mal relief check, in accordance with the requirements of Section XI, Paragraph IWV-3521, and proposed to exercise it open during cold shutdowns and to verify closure during leak testing each refueling outage.

3.20.1.3.1 Licensee Basis for Requesting Relief--Testing this check valve during plant operation would require isolating the penetration for an extended period of time. This would prevent detection of equipment leakage via the drywell and containment equipment drain sumps during the test.

Alternate Testing: An exercise test to verify the valve opens during cold shutdown if not performed during the last 92 days as allowed by IWV-3522. The 10 CFR 50, Appendix J, leak test every refueling will verify closure.

3.20.1.3.2 Evaluation--This valve is a simple check valve that is not equipped with position indication. It opens to relieve thermal pressure and closes for containment isolation. This valve is not equipped with an external operator or position indicator. The only way to verify reverse flow closure is to establish reverse differential pressure and leak test the valve. This is impractical to perform quarterly during operation or during cold shutdowns. Installation of a position indicator or test operator would require system redesign and modification, which would be costly and burdensome to the licensee. The licensee's proposal to verify the closure capability of this valves during Appendix J leak rate testing each refueling outage gives adequate assurance of operational readiness and provides a reasonable alternative to the Code requirements.

Based on the determination that compliance with the Code frequency requirements is impracticable and considering the licensee's proposal and the burden on the licensee if the Code frequency requirements were imposed, relief should be granted as requested.

APPENDIX A
P&ID AND DRAWING LIST

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P&ID AND DRAWING LIST

The P&IDs and Drawings listed below were used during the course of this review.

System	P&ID or Drawing	Rev.
Control Rod Drive Hydraulic	36-1A	0
	36-1B	1
	36-1C	5
Reactor Recirculation	25-1C	0
	25-1D	0
Condensate Makeup, Storage, and Transfer	4-3C	1
Feedwater	6-1B	1
Main Steam	3-1A	0
	3-1B	0
	3-1C	0
Closed Cooling Water-Reactor Plant	9-1A	1
	9-1B	1
Service Water-Normal	9-10A	1
	9-10B	1
	9-10C	5
	9-10D	0
	9-10F	7
Service Water-Standby	9-10E	0
Air-Service and Breathing	12-2C	0
Air-Instrument	12-1B	0
	12-1C	0
Standby Liquid Control	27-16A	1
High Pressure Core Spray	27-4A	1
Residual Heat Removal-LPCI	27-7A	0
	27-7B	0
	27-7C	0
Low Pressure Core Spray	27-5A	1

System	P&ID or Drawing	Rev.
MSIV Positive Leakage Control	27-20A	0
	27-20B	0
Reactor Core Isolation Cooling	27-6A	0
Fire Protection	15-1C	1
Hydrogen Mixing-Purge and Recombiner	27-21A	1
Diesel Generator	8-9A	0
	8-9B	1
	8-9D	
HVAC-Control Building	22-9A	1
HVAC-Containment Building	22-1A	1
	22-1B	1
	22-1C	1
HVAC-Fuel Building	22-6A	0
	22-6B	
HVAC-Auxiliary Building	22-1D	1
HVAC-Chilled Water	22-14D	0
	22-14H	0
	22-14J	0
Containment Atmosphere and Leakage Monitoring	33-2A	0
	33-2B	0
	33-2C	0
Reactor Water Cleanup	26-3A	0
	26-3B	0
Fuel Pool Cooling	34-2A	1
Drains-Floor and Equipment	32-5B	0
	32-9A	0
	32-9B	0
	32-9G	0
	32-9F	1
	32-9J	0
	32-9K	0
	32-9P	5
Sampling-Reactor Plant	21-2B	0

APPENDIX B
IST PROGRAM ANOMALIES IDENTIFIED DURING THE REVIEW

APPENDIX B

IST PROGRAM ANOMALIES IDENTIFIED DURING THE REVIEW

Inconsistencies and omissions in the licensee's program noted during the course of this review are summarized below. The licensee should resolve these items in accordance with the evaluations, conclusions, and guidelines presented in this report.

1. The licensee has requested relief (pump relief request, PRR-10) from annual measurement of pump bearing temperature in accordance with IWP-3300 and proposed to measure vibration velocity. Relief should be granted provided the licensee performs vibration testing in accordance with the requirements of ASME/ANSI OMa-1988, Part 6. (See Sections 2.1.1.1 and 2.1.2.1 of this report.)

2. The licensee has requested relief (PRR-5) from measurement of pump vibration displacement in accordance with IWP-4510 and proposed to measure vibration velocity. Relief should be granted provided the licensee performs vibration testing in accordance with the requirements of ASME/ANSI OMa-1988, Part 6. (See Section 2.1.2.1 of this report.)

3. The licensee has requested relief (PRR-1) from measurement of idle inlet pressure for pumps operating at the start of an IST test. Relief should be granted provided the licensee measures inlet pressure for pumps that are stopped during the quarter as near the test time as practicable. (See Section 2.1.4.1 of this report.)

4. The licensee has requested relief (PRR-2) from pump test acceptance criteria and proposed to use ranges from OM-6, Draft 8, and to allow 96 hours for test data analysis prior to declaring pumps inoperable based on test results. Relief should not be granted. (See Section 2.1.5.1 of this report.)

5. The licensee has requested relief (PRR-11) from measurement of flow rate for standby liquid control pumps and proposed to calculate flow rate based on the rate of change in tank level. Relief should be granted

provided the licensee's measurement meets the accuracy requirements of Table IWP-4110-1. (See Section 2.2.1.1 of this report.)

6. The licensee has requested relief (PRR-3) from testing the standby liquid control pumps quarterly and proposed to test these pumps during cold shutdowns. Interim relief should be granted from the test frequency requirements for a period of six months while the licensee evaluates and revises the SLC pump test procedures. After this time the licensee should test the standby liquid control pumps quarterly in accordance with Section XI. (See Section 2.2.3.1)

7. The licensee has requested relief (PRR-4) from the instrumentation full-scale range requirements of Section XI for all pumps in the IST program except the standby service water pumps and the diesel generator fuel oil transfer pumps. Since the licensee's proposal provides an acceptable level of quality and safety, interim relief should be granted from the range requirements for one year or until the next refueling outage, whichever is longer. Before the end of this period the licensee should provide information specifically describing the differences in static and dynamic inlet pressure for the affected pumps and an evaluation that shows their proposal will give adequate assurance of operational readiness for these pumps. (See Section 2.1.3.1 of this report.)

8. The licensee has requested relief (PRR-8) from measurement of inlet pressure for standby service water and diesel generator fuel oil transfer pumps and proposed to calculate inlet pressure based on the level of liquid above the pump suction. Relief should be granted provided the licensee's measurement meets the accuracy requirements of Table IWP-4110-1. (See Sections 2.3.1.1 and 2.4.1.1 of this report.)

9. The licensee has requested relief (PRR-9) from measuring vibration on the diesel fuel oil transfer pump and proposed no alternative. Interim relief should be granted from direct measurement of pump vibration for a period of one year or until the next refueling outage, whichever is longer. During the interim period the licensee should identify an

appropriate method, such as evaluating pump motor vibration measurements and assigning reasonable acceptance criteria, so that mechanical degradation of these pumps that may render them unable to perform their safety function is identified and appropriate corrective action is taken. (See Section 2.4.2.1 of this report.)

10. The licensee has requested relief (valve relief request, VRR-31) from leak testing all primary containment isolation valves in accordance with the requirements of Section XI, Paragraphs IWV-3420 through -3425, and proposed to leak test these valves in accordance with 10 CFR 50, Appendix J and administrative guidelines. Relief should be granted from the requirements of Paragraphs IWV-3421 through -3425, provided the licensee complies with the requirements of Paragraphs IWV-3426 and -3427(a), as described in GL 89-04, Position 10. (See Section 3.1.2.1 of this report.)

11. The licensee has requested relief (VRR-24) from the Code test method and frequency requirements and proposed to perform sample disassembly and inspection of several (total of 29) check valves. These valves have been divided into groups and are evaluated in Sections 3.1.4.1.2, 3.1.4.2.2, 3.1.4.3.2, 3.1.4.4.2, and 3.1.4.5.2 as well as anomalies 12 thru 16 of this report. Many of these valves are in series with other check valves and there are no intermediate test taps or other provisions, such as external position indication, for verifying valve closure. However, disassembly and inspection should be used to verify check valve operability (open or shut) only when full forward flow or reverse flow testing is impractical. The NRC staff considers check valve disassembly and inspection to be a maintenance procedure that is not a test and not equivalent to the exercising produced by fluid flow as required by Section XI. This procedure has some risks which may make its routine use as a substitute for testing undesirable when some testing method is possible. Check valve disassembly is a valuable maintenance tool that can provide a great deal on information about valve internal condition and as such should be performed under the maintenance program at a frequency commensurate with the valve type and service. The licensee should actively pursue the use of alternate

testing methods to full-stroke exercise these valves, such as using non-intrusive diagnostic techniques to demonstrate whether they swing fully open during partial flow testing or closed when flow has ceased. In the interim, when valve operational readiness cannot practically be determined by observation of system parameters, disassembly and inspection may be used as an alternative, however, tne licensee should perform post maintenance testing (e.g., forward and reverse flow closure testing) of each valve prior to returning it to service following the disassembly and inspection procedure. As additional experience is gained, the staff anticipates providing the industry with updated guidance on the subject as it relates to Code requirements and particularly, as an improvement over the use of disassembly and inspection. If another method is developed to verify the full-stroke capability of these check valves, the affected relief request should be revised or withdrawn.

12. The licensee has requested (VRR-24) to perform sample disassembly and inspection of valves 1E12*VF084A thru VF084C, 1E12*VF085A thru VF085C, and 1CCP*V337 and V338 during refueling outages. Relief should be granted provided the licensee tests these valves per GL 89-04, Position 2. (See also Section 3.1.4.1 and anomaly 11 of this report.)

13. The licensee has requested (VRR-24) to perform sample disassembly and inspection of valves 1HVK*V48 and V97 during refueling outages. Additional information that shows that testing is impractical or that requiring testing of these valves would cause a hardship on the licensee without a compensating increase in safety is needed to complete the evaluation of this relief request. Interim relief should be granted for 6 months while additional information is provided to complete this evaluation. This information should address the specific reasons these valves cannot be full-stroke exercised in accordance with the Code test method requirements quarterly, during cold shutdowns, or during refueling outages. (See Section 3.1.4.2 and anomaly 11 of this report.)

14. The licensee has requested (VRR-24) to perform sample disassembly and inspection of valve 1E51*VF030 during refueling outages. Relief should

be granted provided the valve is part-stroke exercised prior to return to service following the disassembly. (See also Section 3.1.4.3 and anomaly 11 of this report.)

15. The licensee has requested (VRR-24) to perform sample disassembly and inspection of valves 1LSV*V114 and V120 during refueling outages. Additional information that shows that testing is impractical or that requiring testing of these valves would cause a hardship on the licensee without a compensating increase in safety is needed to complete the evaluation of this relief request. Interim relief should be granted for 6 months while additional information is provided to complete this evaluation. This information should address the specific reasons these valves cannot be full-stroke exercised in accordance with the Code test method requirements quarterly, during cold shutdowns, or during refueling outages. (See also Section 3.1.4.4 and anomaly 11 of this report.)

16. The licensee has requested (VRR-24) to perform sample disassembly and inspection of the following series check valves without intermediate test connections during refueling outages. Relief should be granted provided the licensee complies with GL 89-04, Attachment 1, Position 2. (See also Section 3.1.4.5 and anomaly 11 of this report.)

Valve	Valve	Valve
1DFR*V78	1DFR*V107	1SVV*V122
1DFR*V79	1DFR*V108	1SVV*V123
1DFR*V87	1DFR*V117	1SVV*V129
1DFR*V88	1DFR*V118	1SVV*V130
1DFR*V97	1DFR*V127	1DFR*V98

17. The licensee has requested (VRR-2) to verify several drywell to containment interface valves closed during performance of the drywell bypass leakage test conducted during refueling outages. Relief should be granted from the Code test frequency requirements provided these valves are leak rate tested per IWV-3420. (See Sections 3.3.1.1, 3.7.1.2, 3.10.1.2, and 3.18.1.1 of this report.)

18. The licensee has requested relief (VRR-58) from exercising valves 1SWP-MOV57A and -MOV57B, standby service water supply isolations, in accordance with the frequency requirements of Section XI, Paragraph IWV-3411, and proposed to full-stroke exercise and stroke time these valves during refueling outages. The licensee has not demonstrated the impracticability of testing these valves during cold shutdowns, therefore, relief should not be granted as requested. The licensee should full-stroke exercise and stroke time these valves during cold shutdowns and refueling outages or provide justification for not doing so in the form of a relief request that must subsequently be reviewed and approved before implementation. (See Section 3.8.3.2 of this report.)

19. The licensee has requested (VRR-2) to verify several series drywell to containment interface valves closed during performance of the drywell bypass leakage test conducted during refueling outages. Relief should be granted from the Code test frequency requirements provided these valves are leak rate tested in pairs per IWV-3420. (See Sections 3.20.1.1 and 3.20.1.2 of this report.)

20. The licensee has incorrectly categorized check valves 1SVV-V9 and -V31, ADS/relief valve air supply, Category A in VRR-9. These check valves should be categorized A/C. The licensee should correct this typographical error.

21. Relief request VRR-36 (cold shutdown justification) does not provide adequate technical information to evaluate the negative consequences of exercising the Division I and II diesel generator service water outlet check valves 1SWP-V201 and -V202 quarterly other than the associated diesel must be declared inoperable which requires entering a Limiting Condition for Operation (LCO). This alone is not sufficient technical justification for not performing testing required by Section XI because Technical Specifications are written to accommodate periodic surveillance testing. Therefore, the licensee should full-stroke exercise these check valves quarterly or provide information that shows why these valves cannot be exercised during power operation.

22. Relief request VRR-29 (cold shutdown justification) does not provide adequate technical information to evaluate the negative consequences of exercising the control, auxiliary, and fuel building air damper instrument air supply checks, 1IAS-V514, -V515, -V562, -V563, -V608, and -V609 other than "necessary safety equipment" would be affected. Therefore, the licensee should full-stroke exercise these check valves quarterly or provide information that shows why these valves cannot be exercised during power operation. That information must subsequently be reviewed and approved before implementation.

23. Relief request VRR-49 is unnecessary because the standby liquid control system explosive valves, 1C41-VEXF004A and -VEXF004B, do not perform a containment isolation function and are not required to be leak rate tested. The licensee was informed at the working meeting that this relief request may be deleted from the IST program and the valve categorization changed from AD to D. The categorization was changed in Appendix C, p. 38 of 102, Valve Inservice Testing Plan, however, the relief request (VRR-49) was not deleted. The licensee should correct this error.

24. Relief request VRR-44 has been written to document the administrative controls that have been placed on residual heat removal system valves 1E12-MOVF052A, -MOVF052B, -MOVF087A, -MOVF087B, and -RVF036 associated with the steam condensing mode of the RHR system. River Bend Station Operating Licensee (OL) NPF-47, Paragraph 2C(5)a, prohibits the use of the steam condensing mode of RHR. To comply with this, the control power to the motor operated valves has been removed and the valves locked closed. The relief valve is permanently isolated from any high pressure source. No testing will be performed on the valves until the prohibition on using the steam condensing mode of RHR is lifted in the OL. (Reviewer's Comment: This relief request has been included in the IST program for information only.)

25. Relief request for No. 18 (cold shutdown justification) does not provide the necessary technical information to evaluate the negative consequences of quarterly exercising check valves 1E51-VF040, RCIC

turbine exhaust check, -VF061, RCIC fill pump discharge check, -V079 and -V081, RCIC turbine exhaust vacuum breakers, other than that the associated pumps must be declared inoperable which requires entering an LCO. This alone is not sufficient technical justification for not performing testing required by Section XI. Therefore, the licensee should full-stroke exercise these check valves quarterly or provide information that shows why these valves cannot be exercised during power operation. That information must subsequently be reviewed and approved before implementation.

26. Relief request VRR-15 (cold shutdown justification) does not provide the necessary technical information to evaluate the negative consequences of quarterly exercising valves 1CCP-MOV16A and -MOV16B, residual heat removal pumps A and B bearing cooler supply, -MOV130 and -MOV335, residual heat removal pump A bearing cooler return, and -MOV129 and -MOV336, residual heat removal pump B bearing cooler return, other than the associated pumps must be declared inoperable which requires entering an LCO. This alone is not sufficient technical justification for not performing testing required by Section XI. Therefore, the licensee should full-stroke exercise these valves quarterly or provide information that shows why these valves cannot be exercised during power operation. That information must subsequently be reviewed and approved before implementation.