



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE INSERVICE TESTING PROGRAM AND REQUESTS FOR RELIEF
GULF STATES UTILITIES COMPANY
RIVER BEND STATION, UNIT 1
DOCKET NO. 50-458

1.0 INTRODUCTION

The licensee's inservice testing (IST) program was reviewed by the staff and a Safety Evaluation (SE) was issued to the licensee on January 2, 1991. The SE identified a number of anomalies in the licensee's IST program which were included in Appendix B of Attachment 2 of the January 2, 1991, letter. The licensee was requested to address these items within time periods specified in the SE. The licensee responded to the items in a letter dated July 26, 1991, and a supplemental letter dated February 11, 1992. This SE addresses the licensee's response to each item and includes evaluations of new or revised relief requests. The licensee has requested an extension of the interim period for certain relief requests due to an extended refueling outage.

2.0 EVALUATION

2.1 Technical Evaluation Report Anomaly Items

2.1.1 Item 1

Relief request PRR-10 requested relief from the annual measurement of pump bearing temperature in accordance with Section XI, Paragraph IWP-3300, and proposed to measure vibration velocity. The relief request was granted provided the licensee performs vibration testing in accordance with the requirements of ASME/ANSI OMa-1988, Part 6. The licensee revised this relief request in their July 26, 1991, letter to reflect the provision that pump vibration testing be in accordance with ASME/ANSI OMa-1988, Part 6. Since the licensee's alternative testing now incorporates the conditions specified in the staff's SE dated January 2, 1991, no further action is required.

2.1.2 Item 2

Relief request PRR-5 requested relief from measurement of pump vibration displacement in accordance with IWP-4510 and proposed to measure vibration velocity. The relief request was granted provided the licensee performs vibration testing in accordance with the requirements of ASME/ANSI OMa-1988, Part 6. The licensee revised this relief request in their July 26, 1991,

letter to reflect the provision that pump vibration testing be in accordance with ASME/ANSI OMa-1988, Part 6. Since the licensee's alternative testing now incorporates the conditions specified in the staff's SE of January 2, 1991, no further action is required.

2.1.3 Item 3

Relief request PRR-1 requested relief from measurement of idle inlet pressure for pumps operating at the start of an IST test in accordance with the requirements of Section XI, Table IWP-3100-1, Note 1. The relief request was granted provided the licensee measures inlet pressure for pumps that are stopped during the quarter. The licensee revised this relief request in their July 26, 1991, submittal to reflect the provision that the inlet pressure measurements should be taken for pumps that are stopped during the test interval. Since the licensee's alternative testing now incorporates the conditions specified in the staff's SE of January 2, 1991, no further action is required.

2.1.4 Item 4

The licensee indicated in their IST program submitted July 26, 1991, that determination of pump operational readiness may not be in accordance with the Code requirements. The original relief request PRR-2 submitted in their April 22, 1988, submittal had been denied in the staff's SE of January 2, 1991. The original relief request PRR-2 indicated that pump deviation alert range and required action range high values for differential pressure and flow may not be in compliance with the Code requirements and proposed to analyze the test parameters for all pumps in accordance with the guidance of ANSI/ASME OM-6-1986, Draft 8. The licensee submitted the following revised relief request PRR-2 in their February 11, 1992, letter.

Pump Relief Request PRR-2: The licensee requested relief from pump test acceptance criteria corrective action requirements, contained in Section XI, IWP-3230(b), of the Code, if the deviation falls within the required action range of Table IWP-3100-2.

Licensee's Basis for Requesting Relief: River Bend's IST surveillance test program is performed by Operations personnel. If a test value was taken and found to be in the required action range, it would be checked unacceptable by personnel performing the test. The data package would then be given to the Shift Supervisor/Control Room Operation Foreman (SS/COF) for their review of the test. He would then make a timely determination as to whether or not the data meets the requirements of Section XI and take all appropriate Technical Specification actions as required. Engineers would assist the SS/COF as necessary in making the determination as to whether or not ASME XI requirements were met.

Alternative Testing: Determination of required action to be performed by Shift Supervisor/Control Room Operation Foreman upon their review and signature during that shift period. Declaration of required action to coincide with Technical Specification action requirements.

Evaluation: The licensee has revised relief request PRR-2 to delete the ASME/ANSI OM-6-1986, Draft 8, requirements for increased acceptance criteria and no alert range proposal which were concerns in the SE/TER. The allowance of a 96-hour time period to assess test data has also been deleted. The licensee has proposed that the determination of pump operational readiness and Required Action be made by the Shift Supervisor/Control Room Operations Foreman within the shift that testing was performed. In addition, the licensee has proposed to check the pump unacceptable if a test value was taken and found to be in the required action range. The licensee has proposed to continue operation of the pump, even if performing in the required action range, until a determination of pump operational readiness has been made by the Shift Supervisor/Control Room Operations Foreman. Since a pump operating in this range could be significantly degraded, the licensee should declare the pump inoperable and not return the pump to service until the cause of the deviation has been determined and the condition corrected in a timely manner. Test data in the required action high range indicates a significant change has occurred and actual pump condition is unknown. Additionally, test procedures should include detailed information that allows a timely determination that a pump is in the required action range without reliance on other factors which require support by Engineering.

Under plant operating procedures, it is generally the responsibility of the Shift Supervisor/Control Room Foreman to direct actions to declare a pump inoperable. Therefore, if a pump is operating unacceptably and requires corrective action, it would normally be required to obtain the review of the Shift Supervisor/Control Room Operations Foreman to effect these actions. Knowledge that there is a time period involved in declaring a pump inoperable is inherent in the Code. The licensee proposes that these actions will be taken in a timely manner not to exceed one operating shift period. However, the requirements of Section XI and Technical Specifications must be addressed as soon as the responsible individual is aware that an operability problem exists.

The licensee must conform to the Code requirement of Section XI, Paragraph IWP-3230, Technical Specifications, and the provisions of Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," Position 8, in as timely a manner as possible. Considering that the Code does not specify a time limit for declaring a pump inoperable (other than a 96 hour period for analysis of test results), and that the guidance in GL 89-04, Position 8, is based on declaring the pump inoperable as soon as the data is recognized as being within the required action range, it appears that the licensee will be in compliance with Section XI and GL 89-04. Therefore, relief is not required. The licensee should establish a position statement in the IST program and adequate test procedures to ensure a timely determination of the pump test results. The NRC would consider a time period to make the determination, declare the pump inoperable, and enter a Technical Specification Action Statement beyond the shift in which the testing occurs to be excessive.

2.1.5 Item 5

Relief request PRR-11 requested relief from direct measurement of flow rate for the standby liquid control pumps, 1C41-PC001A and 1C41-PC001B, in accordance with the requirements of Section XI, Paragraph IWP-4600, and proposed to calculate flow rate based on the rate of change in tank level. The relief request was granted provided the licensee's measurement meets the accuracy requirements of Table IWP-4110-1. This alternative 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 requirement for flow rate measurement. The licensee did not include the provision in a revised relief request in their July 26, 1991, letter. Though the relief request should state that the accuracy requirements are met, the requested relief granted with the provision continues to be valid provided the flow rate calculations meet the accuracy requirements of Table IWP-4110-1 for measured values and can be verified so by test procedures. The implementation is subject to NRC inspection.

2.1.6 Item 6

Pump Relief Request PRR-3 was deleted in the February 11, 1992, letter.

2.1.7 Item 7

The licensee indicated in their April 22, 1988, letter that instrumentation full-scale range may not be in compliance with the Code requirements of Section XI with the exception of the standby service water pumps and diesel generator fuel oil transfer pumps. The Code states that the full-scale range of each instrument shall be three times the reference value or less. Since the licensee's proposal provided an acceptable level of quality and safety for the short term, interim relief was granted from the range requirements of IWP-4120 for 1 year or until the next refueling outage, whichever is longer. The licensee was instructed to 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. The licensee submitted two relief requests in their July 26, 1991, letter in response to the staff's safety evaluation and later revised PRR-4 in their February 11, 1992, letter. Revised pump relief request PRR-4 was submitted to address Section XI, Paragraph IWP-4120, and a new relief request PRR-12 was submitted to address the differential pressure issue on the reactor core isolation cooling (RCIC), standby service water (SSW), and diesel generator fuel oil transfer (DG/EGF) systems. The following are evaluations of pump relief requests PRR-4 and PRR-12.

Pump Relief Request PRR-4: The licensee has requested relief from the instrumentation full scale requirements of Section XI, Paragraph IWP-4120.

Licensee's Basis for Requesting Relief: For pumps in the IST program, the plant installed instruments are often inoperative or out of calibration and are therefore not used for IST testing purposes. In these tests, the procedure requires the use of calibrated temporary measuring and test equipment (M&TE). The M&TE comes in certain standard full-scale ranges (e.g., 0-15, 0-30, 0-60, 0-100, 0-150, etc.). Example: A problem occurs when trying to obtain the startup and running inlet pressure. The startup inlet reference value is 18 psig and the running inlet reference value is 60 psig. This would require the use of 2 gauges to meet IWP-4120 requirements. In another example a reference value is 31 psig, three times the reference value is 93 psig, the gauge available is 1-100 psig; therefore, the use of this gauge is not allowed by IWP-4120.

River Bend proposes the following allowances to IWP-4120: to use one gauge for pressure readings in lieu of attaching, using, and removing two separate gauges and to permit a 10 percent deviation in the full-scale range requirements to allow the use of a gauge which is within a 10 percent deviation of the full scale range requirements of IWP-4120.

Alternative Testing: (1) Instrumentation (temporary or installed) to allow a 10 percent deviation in the full scale range requirements of IWP-4120. (2) The use of one gauge to obtain measured pressure parameters when the static and running pressures differ requiring the use of 2 pressure gauges to fulfill IWP-4120.

Evaluation: The licensee has revised relief request PRR-4 and proposed to use one gauge to obtain pressure readings instead of attaching, using, and removing two separate gauges. The licensee also proposed to permit a 10 percent deviation in the full-scale range requirements of the Code. Pump suction pressure instrument full-scale range requirements are designed to prevent over-ranging and subsequent damage to the pump. The licensee determined that in order to meet the Code requirements two gauges would be needed in certain cases to measure static and dynamic inlet pressure. They propose the use of one gauge to measure the static and dynamic inlet pressure of the pumps.

The purpose of requiring measurement of inlet static pressure is to ensure available suction pressure. This parameter is not utilized in monitoring the pumps hydraulic condition, except in cases where the inlet pressure may be based on a level calculation of pressure, and these cases are not applicable to this relief request. However, the licensee has not described that the burden of using two inlet pressure gauges is excessive, and has not identified the specific cases where one gauge could not be used for both measurements. Therefore, this aspect of the relief request cannot be granted.

Regarding the proposed 10 percent deviation necessary to allow the use of a gauge slightly above 3 times the reference value, it appears that the licensee could select a test instrument which meets the Code full-scale range requirements. The licensee has not justified that the burden is excessive. Therefore, this relief request cannot be granted.

Pump Relief Request PRR-12: The licensee has requested relief from the differential pressure requirements of Section XI, Paragraph IWP-4240, and from the instrumentation full-scale range requirements of Section XI, Paragraph IWP-4120, for reactor core isolation cooling (RCIC), standby service water (SSWP), and diesel generator fuel oil transfer (DG/EGF) system pumps.

Licensee's Basis for Requesting Relief: The pumps listed on this relief request have unique operating parameters which make it impossible to measure the inlet pressure as specified by the Code. For the standby service water and emergency diesel fuel oil transfer pumps, the inlet pressure parameter is derived by the means of a specific calculation. For the RCIC pump, the flow and speed parameters are adjusted to obtain fixed reference points for consistent and repeatable data. Then the inlet pressure is taken. In this specific case, the inlet pressure for idle and running is significantly different.

Alternative Testing: For the standby service water and emergency diesel fuel oil transfer pumps, the inlet pressure measurement will be taken from a calculation of certain tank level instruments and for the RCIC pump the running suction shall be taken after the pump speed and flow are at their reference values.

Evaluation: The Code requirement applicable for measuring differential pressure states that the differential pressure across the pump shall be determined by taking the difference between inlet and the discharge pressures. The licensee has indicated that it is not possible to measure the inlet pressure as specified by the Code. Therefore, the Code requirement to measure inlet pressure would be impractical. To directly measure pump inlet pressure for the SSWP and DG/EGF pumps would require significant system design changes, which would be costly and burdensome to the licensee.

The licensee's proposed alternative test method for the SSWP and DG/EGF pumps, that inlet pressure measurement be taken from a calculation of certain tank level instruments, can give adequate information for evaluating pump operational readiness and presents a reasonable alternative to the Code if the determination is at least as accurate as the Code requirement for pressure measurement. Therefore, the request for relief from the differential pressure measurement requirements of IWP-4240 for the SSWP and DG/EGF pumps is granted pursuant to 10 CFR 50.55a(a)(3)(i), with the proposed alternative providing an acceptable level of quality and safety, provided the pressure measurement is at least as accurate as the Code requirement.

For the RCIC pumps, the licensee's program procedure, in order to obtain consistent and repeatable data, requires that the flow and speed parameters be adjusted to obtain fixed reference points. The licensee proposed to use the inlet pressure measurement taken after the pump speed and flow are at their reference values. It appears the licensee's basis for requesting relief and alternate testing for the RCIC pumps, are not

applicable to the instrument full-scale range requirements of Paragraph IWP-4120 of Section XI. Relief from this Code requirement is not needed for the RCIC pumps. However, the request for relief from Paragraph IWP-4120 of Section XI of the Code is denied. The licensee has not demonstrated that measuring the inlet pressure at the fixed reference points of pump flow and speed can give adequate information for calculation of pump differential pressure at pump running conditions. The licensee's proposed alternative testing method as described would not give sufficient information for evaluating pump operational readiness or provide a reasonable alternative to the Code requirement. Relief for this aspect of PRR-12 is denied.

2.1.8 Item 8

Relief request PRR-8 requested relief from measurement of inlet pressure for the standby service water, 1SWP-P2A/P2B/P2C/P2D, and diesel generator fuel oil transfer pumps, 1EGF-P1A/P1B/P1C, and proposed to calculate inlet pressure based on the level of liquid above the pump suction. The relief request was granted provided the licensee's measurements meet the accuracy requirements of Table IWP-4110-1. The licensee revised this relief request in their July 26, 1991, letter to reflect the provision that the inlet pressure calculation meets the accuracy requirements of Table IWP-4110-1 for direct measurements (+ or - 2 percent). Since the licensee's alternative testing now incorporates the conditions specified in the staff's SE of January 2, 1991, no further action is required.

2.1.9 Item 9

The licensee indicated in their program that vibration measurements would be taken on the upper motor bearing housing for the emergency diesel generator fuel pumps. The Code states that at least one displacement vibration amplitude (peak to peak composite) shall be read during each inservice test. Since the licensee's testing of these pumps gives some assurance of operational readiness and considering the assurance gained from frequent Technical Specification surveillance of the diesel generator fuel oil transfer subsystem, interim relief was granted from direct measurement of pump vibration for a period of 1 year or until the next refueling outage which ever is longer. The licensee was instructed to identify an appropriate method for evaluating pump vibration and assign reasonable acceptance criteria. Pump relief request PRR-9 was submitted by the licensee in their July 26, 1991, submittal.

Pump Relief Request PRR-9: The licensee 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 to take vibration measurements from the upper motor bearing housing and at a point next to the pump shaft journal bearing.

Licensee's Basis for Requesting Relief: These pumps are submerged in diesel fuel and are inaccessible to measure vibration directly on the pump.

Alternative Testing: Vibration will be taken on the upper motor bearing housing and at a location at a point next to the pump shaft journal bearing. This area is located where the pump housing is bolted to the fuel tank lid.

Evaluation: The requested relief refers to the requirements of Section XI, Paragraph IWP-4510. The licensee has requested relief from these requirements for measuring vibration and has committed to meet the requirements of OM-6 (reference Relief Request PRR-5 in the staff's SE of January 2, 1992, which granted relief). The requirements of OM-6 should be reviewed. If these pumps are vertical line shaft pumps, OM-6 requires the vibration measurements be made at the upper motor bearing housing in three directions. If the licensee determines that the requirements of OM-6 are met, Relief Request PRR-9 should be deleted. Otherwise, PRR-9 should be revised to address the vibration measurement requirements of OM-6 which cannot be met.

2.1.10 Item 10

Relief request VRR-31 requested relief from leak testing all primary containment valves in accordance with the requirements of Section XI, Paragraphs IWV-3420 through IWV-3425, and proposed to leak test these valves in accordance with 10 CFR Part 50, Appendix J and administrative guidelines. The leak test procedures and requirements for containment isolation valves identified by 10 CFR Part 50, Appendix J are essentially equivalent to those contained in Section XI, Paragraphs IWV-3421 through IWV-3425. Appendix J, Type C, leak rate testing provides information which can be used to determine leak-tight integrity of these valves. Requiring leak rate testing of the containment isolation valves in accordance with Section XI, Paragraphs IWV-3421 through IWV-3425, would impose a hardship on the licensee as a duplication of efforts with little or no increase in quality or safety. However, 10 CFR Part 50, Appendix J, leak rate testing does not require trending or establishing corrective actions based on individual leakage rates as required by Paragraphs IWV-3426 and IWV-3427. The licensee has not demonstrated that paragraph IWV-3427(a) requirements are impractical. However, the staff agrees that paragraph IWV-3427(b) is not required to achieve an acceptable level of safety (GL 89-04, Position 10). The relief request was granted from the requirements of Paragraphs IWV-3421 through IWV-3425 provided the licensee complies with the requirements of paragraphs IWV-3426 and IWV-3427(a), as described in GL 89-04, Position 10. The licensee revised relief request VRR-31 in their July 26, 1991, letter to reflect the provision to test the listed containment isolation valves to Appendix J, Type C, requirements and comply with IWV-3426 and IWV-3427(a). Since the licensee's alternative testing now incorporates the conditions specified in the staff's SE of January 2, 1991, no further action is required.

2.1.11 Item 11

This item addresses relief request VRR-24 in which the licensee has requested relief from the Code test method and frequency requirements and proposed to perform sample disassembly and inspection of several (29) check valves. These valves have been divided into groups and will be discussed in greater detail in items 12 through 16 of this report. The licensee's proposed sample disassembly and inspection should be used to verify check valve operational readiness (open or closed) only when full forward flow or reverse flow testing is impractical. Testing may be impractical when 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. Check valve disassembly and inspection can provide valuable information about valve internal condition but is considered a maintenance procedure and is not considered equivalent to the exercising produced by fluid flow as required by Section XI. It was the staff's recommendation that the licensee develop alternative testing methods to full stroke exercise these valves. Items 12 through 16 of this evaluation address the staff's recommendation.

2.1.12 Item 12

Relief request VRR-24 requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521 for valves 1E12*VF084A through *VF084C, 1E12*VF085A through *VF085C, and ICCP*V337 and *V338 and proposed to perform sample disassembly and inspection during refueling outages to demonstrate valve operational readiness. This relief request, referring to the aforementioned check valves, was granted provided the licensee disassembles and inspects these valves per GL 89-04, Position 2.

The licensee revised the relief request in their July 26, 1991, letter. However, it is still not clear whether this relief request reflects the check valve disassembly and inspection program specified by Position 2 of GL 89-04. For example, it is unclear whether one valve or three valves in Group 3 will be disassembled and inspected each refueling outage. In addition, the revised relief request did not address the discussion in the staff's SE of January 2, 1991, on reverse flow closure testing pairs of check valves. The revised relief request should identify the open and/or close function(s) being verified by disassembly and inspection. These concerns should be addressed by the licensee and included in their response to this Safety Evaluation. The licensee should state in the relief request whether or not the disassembly and inspection program is in accordance with GL 89-04, Position 2.

2.1.13 Item 13

An extension of the interim period to January 31, 1993, for further evaluation of relief request VRR-24 (valves 1HVK*V48 and V97) is acceptable in order for the licensee to complete evaluation and implementation of their IST testing procedures for the applicable valves. The alternative testing is in accordance with GL 89-04, Position 2, and is acceptable on a short-term basis

pursuant to 10 CFR 50.55a(a)(3)(i) while the licensee investigates nonintrusive or other test methods. The staff's SE of January 2, 1991, granted interim relief. The original 6-month period was not sufficient for the licensee to complete the evaluation.

2.1.14 Item 14

Relief request VRR-24 requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521 for check valve 1E51*VF030 and proposed to perform sample disassembly and inspection of the valve during refueling outages in order to demonstrate valve operational readiness. This relief request, referring to check valve 1E51*VF030, was granted in the staff's SE of January 2, 1991, provided the valve is part-stroke exercised open and closure capability is verified prior to return to service following reassembly. It was suggested by the staff that the closure function of this valve can be verified by draining the upstream side of the valve and closing the valve disk using condensate storage tank head on the downstream side. However, the staff agreed that there is no apparent method for full-stroke exercising the valve open.

The licensee was requested to actively pursue alternate methods of full-stroke exercising this valve by employing the use of non-intrusive diagnostic techniques to verify valve operational readiness. The licensee's proposed disassembly and inspection plan does provide a reasonable alternative to the Code requirements provided the valve is part-stroke exercised open following reassembly and closure capability is verified prior to return to service. The licensee should address these provisions in a revised relief request.

2.1.15 Item 15

An extension of the interim period to January 31, 1993, for further evaluation of relief request VRR-24 (valves 1LSV*V114 and V120) is acceptable in order for the licensee to complete evaluation and implementation of their IST testing procedures for the applicable valves. The alternative testing is in accordance with GL 89-04, Position 2, and is acceptable on a short-term basis pursuant to 10 CFR 50.55a(a)(3)(i) while the licensee investigates nonintrusive or other test methods. The staff's SE of January 2, 1991, granted interim relief. The original 6-month period was not sufficient for the licensee to complete the evaluation.

2.1.16 Item 16

Relief request VRR-24 requested relief from the exercise test method and frequency requirements of Section XI, Paragraph IWV-3521 for the check valves listed and has proposed to utilize a check valve sample disassembly and inspection program to demonstrate valve operational readiness.

<u>Valve</u>	<u>Valve</u>	<u>Valve</u>
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

Relief request VRR-24 was granted provided the licensee's valve sample disassembly and inspection program complies with the requirements of GL 89-04, Position 2. The licensee has proposed to perform sample disassembly and inspection of these valves once every 9 years due to the large number of valves in the group (12). This testing interval is not in direct compliance with the requirements of GL 89-04, Position 2, neither did the licensee provide the reasoning per the GL guidance for extending the sample disassembly and inspection of each of these valves from 6 years to 9 years assuming an 18-month refueling cycle. This relief request should be revised to reflect the maximum disassembly and inspection interval approved by GL 89-04, Position 2, or provide justification for extending the interval using the guidelines in Position 2.

2.1.17 Item 17

The licensee has indicated that leakage testing of several drywell to containment interface valves (VF013A/B, VF017A/B, ICCP-V119, IAS-V78, CMS-V40, CMS-V41) to verify closure will be included in procedure revisions by January 31, 1993, for relief request VRR-2. Relief Request VRR-2 was granted in the January 2, 1991 SE, provided leak testing per IWV-3420 was performed during the drywell bypass leak test conducted each refueling outage. The licensee was requested to revise test procedures within six months from the date of the SE. These changes were delayed and were not completed prior to the beginning of the 1992 refueling outage. Nevertheless, the licensee should attempt to perform leak testing and closure verification during the 1992 refueling outage scheduled to end on August 15, 1992. If procedures cannot be revised within the outage schedule time period, the licensee must inform the NRC of the reasons for the delay in implementation and indicate a schedule for completing necessary changes.

2.1.18 Item 18

The licensee indicated in their IST program that the testing frequency for the standby service water supply isolation valves and the standby service water supply header loop A and B isolation check with normal service water valves may not be in compliance with the Code requirements. The Code states that Category A, B, and C valves, shall be exercised at least once every 3 months except as provided by IWV-3412(a), IWV-3415, IWV-3416, and IWV-3522. The requested relief was denied for the standby service water supply isolation valves and the licensee was instructed to full-stroke exercise and stroke time these valves during cold shutdowns and refueling outages or provide justification for not doing so. The licensee's requested relief for the standby service water supply header loop A and B isolation check with normal service water valves to full-stroke exercise these valves each refueling

outage was granted without provision pursuant to 10 CFR 50.55a(g)(6)(i). The licensee submitted revised relief request VRR-58 to separate out the relief for the isolation check valves and a new relief request VRR-63 to address the isolation valves. The following are evaluations of valve relief requests VRR-58 and VRR-63.

Valve Relief Request VRR-58: The licensee has requested relief from the test frequency requirements of Section XI, Paragraph IWV-3521 for the standby service water supply header loop A and B isolation check with normal service water valves, 1SWP-V326 and 1SWP-V327. This relief was granted pursuant to 10 CFR 50.55a(g)(6)(i) in the staff's SE of January 2, 1991. No further action on this request for relief is required.

Valve Relief Request VRR-63: The licensee has requested relief from exercising valves 1SWP-MOV57A and -MOV57B, standby service water supply isolation valves, 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.

Licensee's Basis for Requesting Relief: Stroke timing and exercise testing of these valves during cold shutdown would require a RHR loop to be inoperable which would result in a Technical Specification LCO and would disrupt normal service water to operating equipment.

Alternative testing: An exercise test for each valve during every cold shutdown and refueling outages during the plant conditions when service water loads are minimal.

Evaluation: The licensee stated in the new relief request VRR-63 that to test these valves during cold shutdown would require a RHR loop to be inoperable; however, 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. It was the staff's instruction that the licensee should full-stroke exercise and stroke time these valves during cold shutdowns and refueling outages. In the revised relief request, the licensee proposed an exercise test for each valve during every cold shutdown when service water flows are minimal. The alternative testing method proposed by the licensee can give adequate information for evaluating valve operational readiness and meets the Code requirements for testing each cold shutdown and during refueling outages. Therefore, relief is not required.

2.1.19 Item 19

The licensee has indicated that leakage testing of several drywell to containment interface valves (DFR-V14/15/16/17, DFR-V1/4) to verify closure will be included in procedure revisions by January 31, 1993, for relief request VRR-2. Relief Request VRR-2 was granted in the January 2, 1991 SE, provided leak testing per IWV-3420 was performed during the drywell bypass leak test conducted each refueling outage. The licensee was requested to revise test procedures within six months from the date of the SE. These

changes were delayed and were not completed prior to the beginning of the 1992 refueling outage. Nevertheless, the licensee should attempt to perform leak testing and closure verification during the 1992 refueling outage scheduled to end August 15, 1992. If procedures cannot be revised within the outage schedule time period, the licensee must inform the NRC of the reasons for the delay in implementation and indicate a schedule for completing necessary changes.

2.1.20 Item 20

This anomaly addressed the incorrect categorization of check valves 1SVV-79 and -V31, automatic depressurization system (ADS)/relief valve air supply, as category A in relief request VRR-9. The original relief request dealt with the main steam safety/relief valve accumulator instrument air supply isolation check valves and the ADS safety/relief valve accumulator air supply check valves. In response to this anomaly the licensee separated VRR-9 into a revised relief request VRR-9 and a new relief request VRR-61. These relief requests clarify the categorization of these two types of valves and respond to the denial of relief for the main steam safety/relief valve accumulator instrument air supply isolation check valves. The licensee's requested relief for the ADS safety/relief valve accumulator air supply check valves was granted without provision pursuant to 10 CFR 50.55a(g)(6)(i). The following are evaluations of valve relief requests VRR-9 and VRR-61.

Valve Relief Request VRR-9: The licensee has requested relief from the test frequency requirements of Section XI, Paragraph IWV-3521 for the ADS safety/relief valve accumulator air supply check valves:

1B21*VF036A, F, G, J
1B21*VF036L, M, N, P, R
1B21*VF039B, C, D, E, H, K, S

This relief request was granted pursuant to 10 CFR 50.55a(g)(6)(i) in the staff's SE of January 2, 1991. No further action on this request is required.

Valve Relief Request VRR-61: The licensee has requested relief from exercising valves 1SVV-9 and 1SVV-31, main steam safety/relief valve accumulators instrument air supply isolation checks, closed in accordance with the test requirements of Section XI, Paragraph IWV-3521.

Licensee's Basis for Requesting Relief: To test these check valves we would have to isolate the instrument lines to the following instruments: 1CMS*LT23A & B suppression pool level transmitters, 1E22*LTN055C & G high pressure core spray level transmitters, and 1E51*LTN036A & E reactor core isolation cooling level transmitters. Isolation of these instruments during normal operation or cold shutdown would cause trips to the associated system. In addition, any ECCS system is critical during plant operation and even during outages it is essential to minimize down time of these instruments.

Alternative Testing: Exercise during refuel outages by associated test connections and perform a leak test to verify valve closure for operability.

Evaluation: The staff's SE of January 2, 1991, stated that 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 valves could affect safety/relief functioning if difficulties are encountered during the check valve testing. Relief request VRR-61 has not addressed the above staff concerns. Therefore, relief cannot be granted as requested. However, it would be a burden on the licensee to immediately impose the Code required frequency. An interim period is needed to allow the licensee to further investigate the potential testing methods and develop and implement testing procedures. Testing as proposed, which essentially meets the test methods of Section XI, during the 1992 refueling outage scheduled to end August 15, 1992 will provide assurance of the operational readiness of the valves for an interim period of operation; therefore, an acceptable level of quality and safety will be provided for an interim period. Relief is granted pursuant to 10 CFR 50.55a(a)(3)(i) until January 31, 1993, which coincides with the requested extension of the remaining interim relief requests.

2.1.21 Item 21

Relief request VRR-36 did not provide the technical information needed by the staff to adequately evaluate the negative consequences of exercising the Division I and II diesel generator service water outlet check valves, 1SWP-V201 and 1SWP-V202, quarterly, other than declaring the associated diesel inoperable, which would require entering an LCO. This was not considered sufficient technical justification for not performing testing required by Section XI, Paragraph IWV-3521. Technical Specifications are written to accommodate periodic surveillance testing. The licensee agreed that there was no negative impact to testing the check valves on a quarterly interval. The licensee withdrew relief request VRR-36 from their July 20, 1991, submittal. No further action on this item is required.

2.1.22 Item 22

An extension of the interim period for relief request VRR-29 until January 31, 1993, is necessary for the licensee to complete evaluation and implementation of their IST testing procedures. During the Spring 1992 refueling outage, and the period following, the licensee should develop the full-stroke exercising procedures for the instrument air supply check valves or provide additional justification in the cold shutdown justification as to why the applicable valve cannot be exercised during power operations. Because the relief request is a cold shutdown justification, NRC evaluation of the licensee's action is not required. However, the implementation of the actions is subject to NRC inspection.

2.1.23 Item 23

Relief request VRR-49 was considered unnecessary because the Standby Liquid Control System Explosive valves, 1C41-VEXF004A and 1C41-VEXF004B, do not perform a containment isolation function and are not required to be leak rate tested. The licensee was informed by the NRC that the relief request may be deleted from the IST program. The licensee reported their intention to delete the relief request and the relief request was withdrawn by the licensee in their July 26, 1991, submittal. The licensee also recategorized these valves from AD to D; therefore, all aspects of this anomaly have been satisfactorily addressed by the licensee and no further action on this item is required.

2.1.24 Item 24

Relief request VRR-44 has been included in the IST program for administrative purposes only. The original relief request had been written to document the administrative controls that have been placed on Residual Heat Removal (RHR) system valves, 1E12-MOVF052A, -MOVF052B, -MOVF087A, -MOVF087B, and RVF036, associated with the steam condensing mode of the RHR system. River Bend Station's Operating License No. NPF-47, Paragraph 2C(5)a, prohibits the use of the steam condensing mode of RHR. The licensee revised the relief request to only include the relief valve 1E12-MOVF036. The licensee has stated that the relief valve is isolated from any high pressure source and that no testing will be performed on this valve until the prohibition on using the steam condensing mode of RHR is lifted from their operating license. No further action is required on this item.

2.1.25 Item 25

The anomaly identified that the justification for not performing testing of RCIC system valves because entry into a Limiting Condition of Operation is required to effect the testing is inadequate. The original VRR-18 contained additional valves which have been removed from the relief request.

Valve Relief Request VRR-18: The licensee has revised VRR-18 to request relief from the test frequency requirements of Section XI, Paragraph IWV-3411 and Paragraph IWV-3521 for the standby liquid control pump suction isolation valves.

Licensee's Basis for Requesting Relief: The exercise testing of the valves during normal plant operation will require the pumps and system to be declared inoperable during the testing which would result in an LCO.

In order to verify the exercise of the MOVF001A & B valves, the standby liquid control pumps are required to be isolated at the manual suction isolation valve due to no additional isolation valve in the cross tie of the system.

Opening F001 A/B (approximately 30 second valves) would allow some sodium pentaborate to mix with the clean water in the pumps suction. The contaminated water would then have to be flushed and the chemistry analysis of the water taken. During this entire time the system would be

inoperable and in an LCO condition since the condensate makeup used for flushing would dilute the concentration of solution and would not meet the Technical Specification should an injection be required. The necessary flushing of the common line between the two loops (line #004-4-2) makes both divisions inoperable. The test method for MOVFO01A/B would require declaring both pumps inoperable during the flushing. All of this is performed under an 8 hour LCO.

Alternative testing: An exercise test of each valve during cold shutdown if not performed within the previous 92 days as allowed by IWP-3412(a) and IWV-3522.

Evaluation: This item in its original and revised form is a cold shutdown justification rather than a request for relief from the Code requirements. VRR-18 requested relief from the testing frequency for valves 1E51-VF040, reactor core isolation cooling (RCIC) turbine exhaust check, -VF041, RCIC fill pump discharge check, -V079 and -V081, RCIC turbine exhaust vacuum breakers. Other systems were covered in the original VRR-18. The licensee stated that to test these valves per the Code requirement would place the plant in an LCO condition by declaring the associated pumps inoperable. This was not considered sufficient technical justification for not performing testing as required by Section XI. The licensee was instructed to full stroke exercise these check valves quarterly or provide information to show why these valves cannot be exercised during power operation.

The licensee provided a revised relief request VRR-18 (cold shutdown justification) in their July 26, 1991, letter for the standby liquid control (SLC) pump suction isolation valves, 1C41*MOVFO01A and B only. The revised relief request supplied additional information to evaluate the negative consequences of quarterly exercising these valves. Exercising these valves during power operation would require declaring both of the pumps inoperable during flushing operations after the valves are exercised. There is no existing method for isolation of the pump loops from each other due to the lack of an isolation valve in the cross tie of the system. Cleanup and flushing operations must be performed under an LCO within 8 hours. However, this testing requires a lengthy process of flushing and analysis and completion of the evolution may take most of the 8 hours allowed. The staff considers testing that threatens plant shutdown because of an elapsed LCO to be impractical. Therefore, the licensee may implement the proposed alternative testing in accordance with IWV-3412(a). NRC approval in this SE is not required; however, implementation of the testing is subject to NRC inspection.

2.1.26 Item 26

The anomaly identified that the licensee had not adequately justified not testing certain valves during power operations. A revised relief request VRR-15 (cold shutdown justification) was submitted.

Valve Relief Request VRR-15: The licensee has requested relief from the test frequency requirements of Section XI, Paragraph IWV-3521 for the closed cooling water supply header isolation check valves to the RHR pump bearing coolers and fuel pool cooling heat exchangers.

Licensee's Basis for Requesting Relief: The exercise testing of the valves during normal operation would cause the RHR pump on the affected loop to be declared inoperable due to the loss of cooling water to the RHR pump seal cooler. The exercise testing of the valves during cold shutdown is acceptable because with reactor coolant temperature below 212 degrees, seal cooling to the RHR pumps is not required.

Closed cooling water (CCW) is the normal and preferred source of bearing cooling water for the RHR pump seal cooler. Exercising the check valves would isolate this supply rendering the pumps inoperable which would require an LCO. The safety position is closed, at which time standby service water will supply cooling isolated from CCW by check valves.

When a CCW low pressure occurs, CCW is isolated and cooling water is supplied by standby service water pumps (SWP) to the SFC heat exchanger and RHR bearing coolers. *V73 works to prevent SWP flow from entering the CCW system should MOV16A fail to auto close on low pressure. This same discussion applies to *V72. (MOVs 169 and 163 auto close to prevent flow to the non-safety related control rod drive pumps).

Testing of these valves during operation would require isolation of cooling flow to the RHR pump bearings, fuel pool HX, and CRD pump bearings, resulting in loss of the CRD pumps and loss of RHR pump operability. If you try to use SWP to prove valves close, it would contaminate CCW with SWP quality water. Therefore, these valves cannot be tested quarterly without causing plant damage, shutdown, and decreasing plant safety.

Alternative Testing: An exercise test of each valve during cold shutdown if not performed within the previous 92 days as allowed by IWV-3412(a) and IWV-3522.

Evaluation: The original relief request VRR-15 requested relief from the testing frequency for valves ICCP-MOV16A and -MOV16b, residual heat removal pumps A and B bearing cooler supply; -MOV130 and -MOV335, RHR pump A bearing cooler return, and -MOV129 and -MOV336, RHR pump B bearing cooler return, as well as certain other valves. The licensee stated that to test these valves per the Code requirement would place the plant in a LCO condition by declaring the associated pumps inoperable. This was not considered sufficient technical justification for not performing testing as required by Section XI. The licensee was instructed to full stroke exercise these check valves quarterly or provide information to show why these cannot be exercised during power operation. The licensee submitted a revised relief request VRR-15 in their July 26, 1991, letter that requested relief from the testing frequency requirements for the closed cooling water supply header isolation checks valves ICCP*V72 and ICCP*V73. Although the addressed check valves are from a different

category, the reasoning behind requesting relief is similar to that described in the original relief request for the motor operated valves.

The revised relief request supplied additional information required to evaluate the negative consequence of quarterly exercising these check valves. It is impractical to exercise these check valves during power operations because this would cause the affected loop to be considered inoperable. Loss of cooling flow to the associated pump bearings during plant operation would require an LCO. The standby service water would supply cooling water flow when the CCP checks are closed. The water from the SWP system would contaminate the CCP water because it is of lower quality. To test these check valves during plant operation according to the Code requirements would cause an undue burden on the licensee because plant damage, shutdown and decreased plant safety could potentially occur. The licensee's proposal to exercise test each valve during cold shutdown if not performed within the previous 92 days as allowed by IWV-3412(a) and IWV-3522 gives adequate assurance of operational readiness and meets the Code requirements for cold shutdown testing. NRC approval of the cold shutdown test frequency is not required; however, implementation is subject to NRC inspection.

2.2 Additional Revised or New Requests for Relief

2.2.1 Valve Relief Requests VRR-20 and VRR-62

Valve relief request VRR-20 was submitted by the licensee in their April 22, 1988, letter, and subsequent relief was granted by the January 2, 1991, SE, to verify open each cold shutdown and closure each refueling outage for the shutdown cooling return check valves, 1E12-VF050A and -VF050B. To clarify each of these alternative testing methods described by the licensee, the licensee submitted revised relief request VRR-20 and new relief request VRR-62.

Valve Relief Request VRR-20: The licensee requested relief from Section XI, Paragraph IWV-3521, that states, check valves shall be exercised at least once every three months. The licensee proposed to confirm the closure of the shutdown cooling return check valves during every refueling outage. 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 during cold shutdowns because this requires draining of a portion of the affected shutdown cooling load to backseat the valve resulting in high radiation exposure to personnel. The licensee's proposal was considered an acceptable alternative to the Code requirements and the request for relief to verify closure every refueling outage of the shutdown cooling return check valves was granted in the staff's SE of January 2, 1991.

Relief Request VRR-62: The licensee requested relief from the Section XI, Paragraph IWV-3521 requirements and proposed to verify the shutdown cooling check valves, 1E12-VF050A and 1E12-VF050B, open during cold shutdowns each time the associated RHR loop is placed into the normal shutdown cooling mode during the reactor shutdown. The proposal to

verify the check valve open during cold shutdowns provided an acceptable justification for the cold shutdown Code requirement and request for relief VRR-62 (as a part of VRR-20) was granted in the staff's SE of January 2, 1991.

2.2.2 Pump Relief Request PRR-13

The licensee has requested relief from the test measurement methods of Section XI, Paragraph IWP-4600 for the HVAC chilled water and standby service water pumps, 1HUK*P1A,B,C,D and 1SWP*P3A,B,C,D.

2.2.2.1 Licensee's Basis for Requesting Relief: These pumps have plant installed instrument gauges that do not read in increments beneficial for measuring the flow rate parameter on these pumps. These instruments receive a signal only, and it is not possible to install a temporary gauge.

2.2.2.2 Alternative Testing: The use of a multimeter (+ or - 2 percent accuracy) to read flow meter volts (DC) in lieu of a flow meter or temporary installed gauge.

2.2.2.3 Evaluation: In reference to the use of a multimeter to read flow meter voltage in lieu of a flow meter or temporary installed gauge, Section XI, Paragraph IWP-4600 states where the meter does not indicate the flow rate directly, the record shall include the method used to reduce the data. The licensee's installed instrumentation does not read in increments beneficial for measuring the flow rate parameter on the associated pumps. The licensee proposed to use a multimeter to determine the flow rate. This is considered an acceptable method per the Code; however, the licensee should provide clarification on the method used to reduce the multimeter data if this clarification is not already provided. The method should be included in the pump inservice test procedure(s). The licensee's proposed alternative testing method can provide adequate assurance of pump operational readiness and can meet the requirements of IWP-4600. Therefore, relief is not required.

2.2.3 Valve Relief Request VRR-63

This relief request is a cold shutdown justification for testing standby service water supply header isolation valves at cold shutdowns and during refueling outages. NRC approval is not required; however, implementation is subject to NRC inspection.

2.2.4 Valve Relief Request VRR-64

The licensee requests relief from the requirements of IWV-3411, IWV-3412, and IWV-3513 (NOTE: The paragraph which should be referenced is IWV-3413), for quarterly stroke time testing valves 1SWP-MOV-55A/B.

2.2.4.1 Licensee's Basis for Relief: Testing of these valves under the present system configuration, a common suction for normal service and the circulating water system from the circulating water flume, has minimum effect

on the operation of the plant. These effects include minor chemistry changes (chlorine dilution) and the increase in level of the standby cooling tower basin.

In Refueling Outage No. 4 to address corrosion problems, the existing system configuration will be modified by separating the normal service water system from the circulating water system, and by closing the system to operate as a closed loop system. This will allow better chemistry control for the service water system. Due to a limited volume of water in the closed loop system, a potential for a plant transient is likely if a substantial quantity of water is being lost.

The new closed loop system includes a surge tank with a working capacity of approximately 30,000 gallons. The storage capacity was increased from 10,000 gallons to partially address the above problem. The original design included a 10,000 gallon surge tank to account for thermal expansion, some component draindown, and minor system leakage (less than 3 to 5 gpm). The makeup to the system is provided at a rate of about 100 gpm from the demineralized makeup water system through a two inch line. There is also an additional six inch line that can supply makeup to the limit of the demineralized makeup water pumps through a manual valve (about 350 gpm).

Given a flow rate of approximately 10,000 gpm through the open standby cooling tower inlet valve, the additional surge capacity will provide approximately two minutes before the normal service water system volume reduces to the point where operator action to shut down the plant would occur.

Additionally, the injection of the closed loop system chemistry into the standby cooling tower will result in significant disposal consideration of the water being added to the standby cooling tower basin each time the valves are tested.

The normal stroke time for opening and closing these valves is 30 seconds in each direction. The historical trends for the stroke times for the above valves have been very satisfactory.

2.2.4.2 Alternative Testing: The licensee proposes that, based on the above reasons, the frequency to test the 1SWP-MOV-55A/B valves should be changed from the current 92 days to every refueling outage. This will minimize the impact of testing on plant operation as described above.

2.2.4.3 Evaluation: The licensee indicates that a design modification being made in Refueling Outage No. 4 limits the frequency of exercising these valve for stroke time testing. Though the relief request does not clearly describe the normal position of these valves, the configuration which limits the testing, and the location of manual valves, it appears that the design modification is inadequate to meet the requirements of 10 CFR 50.55a(g)(3)(iv) to enable inservice testing. It appears that the valves are normally closed and would divert approximately 10,000 gpm of service water to the standby cooling tower during stroke time testing. The design should include manual valves to isolate the valves for testing. If the valves were normally open, this would not be the case. Therefore, relief cannot be granted as requested.

The licensee should review the design modification and submit a revised relief request explaining the reasons why it was impractical for the design to include testing provisions, or to further explain the design of the piping system and the impact of testing and include any additional information relative to the current situation.

3.0 Conclusion

The staff has determined that the reliefs granted in this SE, pursuant to 10 CFR 50.55a(a)(3)(i), are authorized by law and will not endanger life or property, or the common defense and security and are otherwise in the public interest. For the reasons stated above, certain relief requests have been denied while other items require no further staff action.

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