ENTERGY

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U.S. Nuclear Regulatory Commission
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Subject: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
Interim Relief Request, IRR-02

File Nos.: G9.5, 224.600

RBG-40771

Gentlemen:

In accordance with 10CFR50.55a, Entergy Operations, Inc. (EOI) hereby submits Interim Relief Request (IRR) 02 for River Bend Station (See Attachment 2). This one-time temporary relief request would extend the test frequency and postpone testing required by ASME Section XI, IWV-3521 and IWV-3522 for four reactor building equipment drain drywell isolation check valves.

The River Bend Station (RBS) Inservice Testing (IST) program is undergoing a systematic review in accordance with the long term performance improvement plan (LTPIP), submitted to the NRC on March 28, 1994, (RBG-40428). This program includes, in part, an IST Improvement Plan to upgrade the technical adequacy and functionality of the IST program. During this IST systematic review, the heightened awareness and questioning attitude of a cognizant engineer led to the discovery that four check valves had not been tested in accordance with ASME Code requirements since plant startup.

ASME Section XI IWV-3521, "Test Frequency," states that check valves shall be exercised at least once every three months, except as provided by IWV-3522. IWV-3522, "Exercising Procedure," states that check valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation. Four valves, two valves per line in series (1DER*V14 & 1DER*V15 and 1DER*V16 & 1DER*V17), are contained in two separate 8-inch

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diameter lines that penetrate the drywell and allow drainage from equipment inside containment into the containment equipment drain sump located inside the drywell. The drain line enters the sump and extends below the sump minimum water level (See Attachment 1).

Valve Relief Request (VRR-2), which was submitted and approved with Revision 6 of the RBS Pump and Valve Inservice Testing Program Plan, allowed the drywell bypass leakage test required by Technical Specification 4.6.2.2 to be used to verify the closure of the drywell isolation check valves. Due to the system layout described above, the sump water seal may isolate the check valves from the drywell bypass test volume. As a result, the drywell bypass leakage test cannot be credited for verifying the closure of these drywell isolation check valves.

Upon discovery of this condition, Technical Specification 4.0.3 was entered and efforts were made to test the valves. However, alternate forms of testing have provided indeterminate results. Therefore, EOI has been unable to return the valves to an OPERABLE status. Closure verification for similar check valves with the same application has been successfully demonstrated using the drywell bypass test. Assuming similar reliability between like valves, reasonable assurance exists that the subject valves are capable of performing their design safety function.

On July 29, EOI entered ACTION c of Technical Specification 3.6.4, "Primary Containment and Drywell Isolation Valves," and isolated each affected penetration. A footnote to this ACTION states that isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under administrative controls. This action allows the drain lines to satisfactorily serve their process function of passing drainage from containment equipment.

The relief from ASME Section XI IWV-3521 and IWV-3522 requested in IRR-02 would extend the test frequency and postpone required testing for the four check valves until the next refueling outage, currently scheduled to begin in September 1995. This temporary relief is justified in accordance with 10CFR50.55a(a)(3)(ii) because disassembling these valves would require a forced shutdown of RBS that would result in a hardship and unusual difficulties without a compensating increase in the level of quality and safety. Approving this request averts a forced shutdown for a condition which does not constitute a reduction in the overall protection of the public health and safety.

An engineering evaluation (See Attachment 3) determined that the drywell is capable of performing its safety function. Calculations show that complete valve internals degradation would result in a post-accident bypass leakage area less than the design value of 1.15 square feet. With partial valve closure, the Technical Specification testing criteria of 0.1 square foot would also be satisfied.

EOI asks for prompt action on the part of the NRC in reviewing IRR-02 due to 1) the increased burden placed on operators monitoring and manually draining the equipment drain lines, and 2) the potential for uncontrolled discharge of radioactive water from various sources (e.g., relief valve discharge, SCRAM discharge volume, equipment drains, sample lines, etc.) to the containment via open equipment drain hubs. Approval of IRR-02 is requested as soon as possible to eliminate this burden. Your cooperation regarding EOI's request is greatly appreciated.

If you have further questions regarding this request, or require additional information, please contact me or my staff.

Very truly yours,

James J. Fisicaro

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Director - Nuclear Safety
attachments

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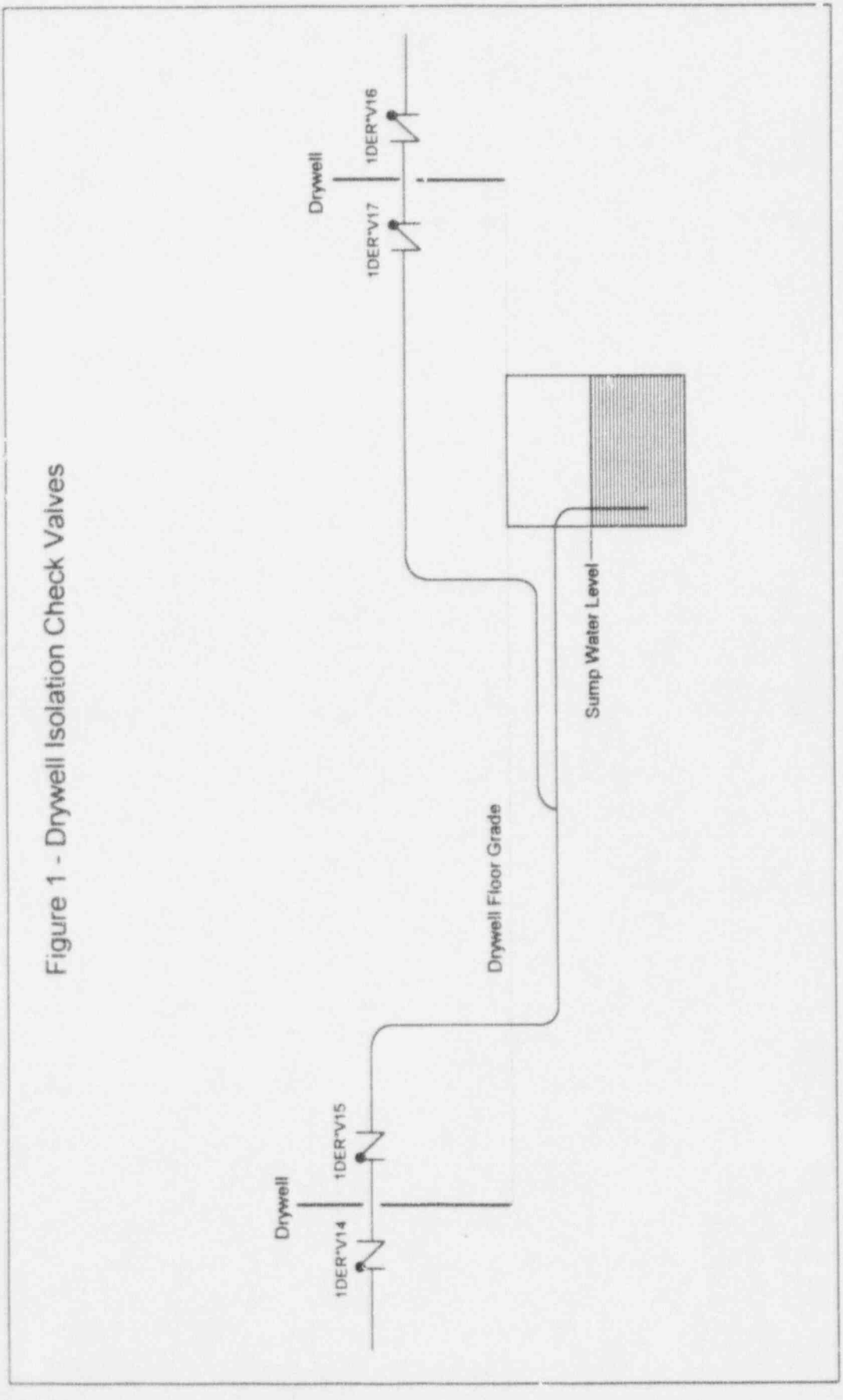
ATTACHMENT 1



ATTACHMENT 2

Interim Relief Request No. IRR-02

SYSTEM	Containment Equipment Drains
CODE CLASS	2
CATEGORY	C
COMPONENTS	1DER*V14 & 1DER*V15 1DER*V16 & 1DER*V17
FUNCTION	The Reactor Building Equipment Drains Drywell Isolation Check Valves are 8" swing check valves supplied in series inboard and outboard of the containment drywell. The valves are contained in two separate 8" lines that penetrate the drywell and have a process function in the open direction to allow drainage from various pieces of containment equipment to flow to the drywell equipment drain sump. Inside the drywell, the 8" drain lines are routed in the concrete floor and are joined before entering the sump. The drain line outlet inside the sump is routed to empty the drainage below the sump minimum water level. According to USAR Section 6.2, the valves have an active close safety function to isolate the drywell in the event of a high energy line break. Isolation of the drywell ensures that the majority of high energy fluid exhausted from the break is condensed in the drywell. This condensing action precludes over-pressurization of the primary containment. The valves are provided to prevent a gross diversion of flow from the drywell to the primary containment. The valves have no specific leakage requirement. Closure of either valve in the valve pair is sufficient to meet the system safety function requirements.
TEST REQUIREMENT:	IWV-3521,"Test Frequency," "Check valves shall be exercised at least once every 3 months, except as provided by IWV-3522." IWV-3522, "Exercising Procedure," "Check valves shall be exercised to the position required to fulfill their function unless such operation is not practical during plant operation..."

BASIS FOR RELIEF

The Containment Equipment Drain System design prohibits exercising these valves individually due to the lack of test connections between the valves. The valves cannot be tested quarterly since the drywell is not accessible during power operation.

Relief Request VRR-2 submitted and approved with revision 6 of the River Bend Station Pump and Valve Inservice Testing Program Plan allowed the Drywell Bypass Leakage Test required by Technical Specification 4.6.2.2 to be used to verify the closure of the drywell isolation check valves.

A recent review of testing activities for these valves has indicated that use of the Drywell Bypass Leakage Test to verify closure for the subject valves may not be adequate. Due to the system layout described above, the drain lines containing check valves 1DER*V14 / 1DER*V15 and 1DER*V16 / 1DER*V17 have a water seal at the drywell sump. Due to the low differential pressure, the sump water seal may isolate the check valves from the Drywell Bypass Test volume.

An engineering evaluation has been performed that confirms that drywell bypass leakage remains within the design bases if it is conservatively assumed that the valve internals for both of the subject drywell penetrations are not present.

Closure verification for similar check valves in the same service has been successfully demonstrated using the Drywell Bypass Test. Assuming similar reliability between like valves, reasonable assurance exists that the subject valves are capable of performing their design safety function.

ALTERNATE TESTING:

No alternate testing is proposed. The valves close safety function will be verified at the next Refueling Outage either by disassembly or by modification of piping to allow use of the drywell bypass test.

ATTACHMENT 3

Engineering Evaluation of Check Valves DER*V14, DER*V15, DER*V16, and DER*V17

Provided below is technical evaluation of potential bypass leakage through two 8 inch diameter equipment drain drywell penetrations which could occur if the subject check valves were degraded.

BACKGROUND

During an Inservice Testing (IST) program review, it was discovered that four 8-inch ASME class 2 check valves, DER*V14,15,16,17, may not have been tested in accordance with ASME Section XI as required by Technical Specification 4.0.5. Condition Report (CR) 94-0957 was initiated to document this deficiency on July 27, 1994.

Valve Relief Request (VRR-2), which was submitted and approved with Revision 6 of the RBS Pump and Valve Inservice Testing Program Plan, allowed the drywell bypass leakage test required by Technical Specification 4.6.2.2 to be used to verify the closure of the drywell isolation check valves. The purpose of the drywell bypass test is to ensure the structural integrity of the drywell such that the steam released after a drywell pipe break does not bypass the suppression pool condensing function and challenge the containment design pressure of 15.0 psig. This test is an integrated test performed during refueling outages and the leakage value is limited to 10% of the design leakage rate.

The piping configuration for valves DER*V14, 15, 16, and 17 may not provide an adequate vent path during drywell bypass leakage testing. This is because the inlet piping inside sump DER*TK2 has a downcomer to approximately 9 inches above the bottom of the sump. An adequate vent path is dependent upon the water level in the sump during testing. If the water level is too high, there is a potential for a water seal to exist. This water seal could affect the leakage measured during bypass testing, and as a result, not adequately test for closure of the valves as intended.

EVALUATION

The limiting case accident is a very small reactor coolant system break which will not result in reactor depressurization. This scenario will result in long term containment pressure build-up due to bypass leakage.

From the USAR, the maximum bypass leakage area allowed by design is 1.15 square feet. The Technical Specification acceptance criteria for drywell bypass testing is 0.1 square foot. For piping penetrations through the drywell, an equivalent area is calculated by $A/\sqrt{K}$ where A is the area of the penetration and K is the hydraulic resistance for the associated piping, valves, elbows, tees, etc.

A calculation was performed to determine the overall effective area ($A/\sqrt{K}$) for the piping from sump DER-TK2 to the outboard drywell check valves. It assumed the piping remains intact throughout the postulated event. This piping is non-safety related; however, it is seismically designed and analyzed. The calculation results are that the $A/\sqrt{K}$ value is 0.258 square foot with no credit taken for any check valve internals (i.e., assuming the discs are removed in their entirety and the valves have the same resistance as pipe). Including the refueling outage (RF) 5 test data of 0.0105 square foot, the bypass leakage would be 0.268 square foot. This provides a margin of safety of 4.28 to the maximum value in the USAR of 1.15 square feet. This is a conservative approach due to the assumption that no valve internals are present.

A more realistic evaluation with credit taken for resistance due to check valve internals was also performed. It was determined that a value equal to 0.1 square foot (which is the test acceptance criteria noted above) is achieved with all four check valves approximately 46% open. This equates to all four valves approximately three and one-half (3 1/2) inches open off the seat at the same time. However, based on engineering judgment, this is also considered to be conservative because it is more reasonable that at least one of the two valves for each penetration is closed or near closed. This condition would further increase the K value resulting in an even lower value of $A/\sqrt{K}$, increasing the margin of safety.

ADDITIONAL INFORMATION

The configuration used during the drywell bypass leakage test was also reviewed. It was concluded based on discussions with operations personnel that the level of sump DER-TK2 was lowered to the low level for performing the test during RF5. This would have resulted in a sufficient amount of water being displaced into the DER piping from the tank, uncovering the bottom of the downcomer pipe. In this condition the subject check valves would have contributed to the measured bypass leakage. Although it cannot be absolutely determined, it is strongly believed that the drywell bypass leakage test performed during RF5 would have accounted for any leakage from these four check valves, and therefore it adequately verified closure of the valves.

CONCLUSION

The drywell is capable of performing its safety function based on the determination of this evaluation that bypass leakage will be within design for the worst case condition of no valve internals. Although check valves DER*V14, 15, 16, and 17 may not have been tested in accordance with the in-service testing requirements of ASME Section XI to determine valve closure, even complete internals degradation would result in a post-accident bypass leakage area less than the design value of 1.15 square feet. With partial valve closure, the Technical Specification testing criteria of 0.1 square foot would also be satisfied.