



**GULF STATES UTILITIES COMPANY**

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RBG- 39425  
File No. G9.5, G9.42

RBEXEC-93-656

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

**River Bend Station - Unit 1**  
**Docket No. 50-458**

Gentlemen:

Gulf States Utilities Company (GSU) hereby files an application to amend the River Bend Station - Unit 1 Technical Specifications. This application is filed to revise applicable Technical Specifications related to valve leak rate testing to allow a one-time extension of the surveillance intervals. Included in this request are administrative changes to the Technical Specifications related to 10 CFR 50 Appendix J, Type C test intervals. These changes have been addressed by our request for exemption from the schedular requirements of 10 CFR 50, Appendix J submitted this date. The administrative changes implement the extension to be granted based on that exemption request.

The requested extensions are requested on a one-time only basis to support our current refueling outage schedule. To require a plant shutdown solely to perform surveillance tests would cause an unnecessary transient on the plant and result in unnecessary exposure to personnel. GSU will make a good faith effort to complete the surveillance tests within the current frequency if an outage of sufficient length occurs.

Attachment 1 and Enclosures 1 and 2 to this letter provide the justification for the proposed revisions to the Technical Specifications as shown in Attachment 3. Attachment 2 provides the no significant hazards consideration discussion.

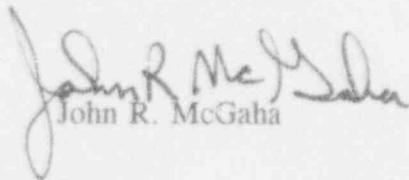
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If you have any questions or comments, please contact Mr. Leif L. Dietrich of my staff at (504) 381-4866.

Sincerely,



John R. McGaha

Attachments

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

STATE OF LOUISIANA )

PARISH OF WEST FELICIANA )

In the Matter of )

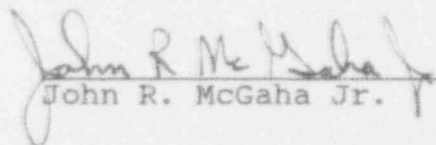
GULF STATES UTILITIES COMPANY )

Docket No. 50-458


(River Bend Station - Unit 1)

AFFIDAVIT

John R. McGaha Jr., being duly sworn, states that he is a Vice President of Gulf States Utilities Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission the documents attached hereto; and that all such documents are true and correct to the best of his knowledge, information and belief.

  
John R. McGaha Jr.

Subscribed and sworn to before me, a Notary Public in and for the State and Parish above named, this 18th day of November, 1993. My Commission expires with Life.

  
Claudia F. Hurst  
Notary Public in and for  
West Feliciana Parish, Louisiana

ATTACHMENT 1

GULF STATES UTILITIES COMPANY  
RIVER BEND STATION  
DOCKET 50-458/LICENSE NO. NPF-47

VALVE LEAK RATE TESTING  
(93-11)

DOCUMENT INVOLVED: Technical Specifications

ITEMS: Surveillance Requirement 4.4.3.2.2a  
Surveillance Requirement 4.6.1.3d  
Surveillance Requirement 4.6.1.3f

REASON FOR REQUEST:

The River Bend Station (RBS) Technical Specifications (TS) require, in several TS Surveillance Requirements (SRs), that valves providing isolation of Primary Containment that are sealed by the Main Steam - Positive Leakage Control System (MS-PLCS) or the Penetration Valve Leakage Control System (PVLCS), and valves that provide isolation of the reactor coolant system from lower pressure rated systems (i.e., pressure isolation valves (PIVs)) be leak rate tested, nominally at refueling intervals but at least once every 18 months. TS 4.0.2 allows a 25% extension of the surveillance interval to 22.5 months, if required, to provide flexibility in cycle lengths.

In addition to the above, valves providing isolation of Primary Containment are also required to be Type C leak rate tested in accordance with 10 CFR 50, Appendix J, Section III.D.3 at intervals not to exceed 24 months. The allowable extension of TS 4.0.2 does not apply to the intervals specified by 10 CFR 50, Appendix J, Section III.D.3.

A one-time change is being requested to extend the surveillance intervals for the above cited TS SRs and, as applicable, to reflect our concurrent request for exemption from the schedular requirements of 10 CFR 50, Appendix J, Section III.D.3. The TS SRs for which extension of the surveillance intervals is requested are a) SR 4.4.3.2.2a, Reactor Coolant System PIVs, and b) SR 4.6.1.3f, MS-PLCS and PVLCS sealing air leakage to containment. The TS SR which is requested to reflect the exemption from the schedular requirements of 10 CFR 50, Appendix J is 4.6.1.3d, Type C tests.

GSU will make a good faith effort to conduct these surveillance tests on the current frequency if an outage of sufficient duration occurs. In order to perform the above surveillance tests, the plant must be in a shutdown condition. To require the plant to shut

down solely to perform surveillance tests would cause an unnecessary thermal transient on the plant and result in unnecessary exposure to personnel. GSU proposes to amend the cited TS contained in Appendix A to the RBS Operating License, as discussed below and in the respective enclosures, to perform the subject surveillance tests during the fifth refueling outage (RF-5), presently scheduled to begin April 16, 1994. The applicability of the extension should be until at least April 19, 1994, in order to allow time for cooldown to Mode 4 wherein the Limiting Conditions for Operation for the respective SRs are not applicable. Therefore, the proposed revisions to the TS are worded such that the surveillance tests 'may be performed during the refueling outage following the fifth operating cycle scheduled to begin April 16, 1994'. Should the proposed changes not be granted by February 7, 1994, GSU will be forced to implement an unplanned outage during this operating cycle.

#### BACKGROUND:

The River Bend Station - Unit 1 (RBS) has been in operating Cycle 5 since September 8, 1992, after completing the fourth refueling outage which began March 12, 1992. During this period, several forced outages have occurred which have impacted the 18-month surveillance intervals required by the TS for reactor coolant system PIV leak rate testing, PVLCS and MS-PLCS leak rate testing, and the 24-month interval required by 10 CFR 50, Appendix J for valve leak rate testing. This will result in several surveillance tests performed during the last refueling outage to exceed the surveillance interval plus the allowable extension to the interval specified in TS 4.0.2, where applicable.

#### DISCUSSION:

As stated in Section 5.2.5.1.4 of the RBS Updated Safety Analysis Report (USAR), safety systems connected to the reactor coolant pressure boundary (High Pressure Core Spray, Low Pressure Core Spray, Residual Heat Removal, and Reactor Core Isolation Cooling) are isolated from the reactor coolant system by two or more isolation valves placed in series. Periodic leak testing of each of these PIVs is performed to ensure the integrity of the valve, demonstrate the adequacy of the redundant pressure isolation function, and give indication of valve degradation over a period of time. In addition, the pressure in each of these systems is monitored. A high pressure alarm, located in the main control room provides an indication of possible reactor coolant leakage into the system across the PIVs. Technical Specification SR 4.4.3.2.2a provides the leak testing requirement for each reactor coolant system PIV specified in TS Table 3.4.3.2-1. The valves are required to be demonstrated operable by leak testing pursuant to TS 4.0.5 [ASME Section XI], including paragraph IWV-3427(B) of ASME Section XI and verifying that the leakage of each valve is within the specified limit at least once per 18 months (with a maximum allowable extension per TS 4.0.2 of 4.5 months). The cited PIVs from TS SR 4.4.3.2.2a require an extension of this surveillance interval in that 5 of the total 16 valves will exceed

this interval duration by a maximum of 65 days. The justification for this extension is provided in Enclosure 1.

As cited in Section 6.2.4 of the RBS USAR, the purpose of the Containment Isolation System is to prevent the release of significant amounts of radioactive materials from the fuel, the reactor coolant pressure boundary, and the steel primary containment by automatically isolating appropriate lines in the nuclear steam supply system, auxiliary systems, and support systems which penetrate the primary containment. As part of the Containment Isolation System, the MS-PLCS, per USAR Section 6.7, prevents the release of fission products, in the event of leakage, through the closed main steam isolation valves (MSIVs) and main steam drain lines after a design-basis loss of coolant accident (LOCA). The system establishes a pressurized volume in the main steam lines by maintaining a pressure of at least 10 percent over the prevailing post LOCA reactor vessel pressure which could otherwise instigate leakage to the environment. In the same vein, per USAR Section 9.3.6, the purpose of the PVLCS is to control and minimize the release of fission products which could leak through and from valves in lines penetrating the containment structure, which could potentially leak to the environment without prior processing by the standby gas treatment system or the charcoal filtration system of the fuel building ventilation system (bypass leakage).

The PVLCS, similar to the MS-PLCS, uses air to pressurize valve bodies in various fluid systems that penetrate the containment by injecting air into the space between the seats of the double-disk gate valves. The pressure barrier is maintained at a pressure at least 10 percent higher than the peak calculated drywell pressure. Thus, for MS-PLCS and PVLCS sealed valves, only inleakage of nonradioactive air into the containment is possible past the valves, and no post-LOCA containment atmosphere is discharged through the pressurized valves. Technical Specification SRs 4.6.1.3d, 4.6.1.3f, and 4.6.1.3h specify the leak testing requirements for the valves which provide a containment isolation function. SR 4.6.1.3d requires that penetrations and valves which provide a containment isolation function be Type C tested with gas at  $P_a$  [accident pressure], 7.6 psig, at intervals no greater than 24 months. This SR implements the requirements of 10 CFR 50, Appendix J. There are, however, exceptions to this SR, which include the containment isolation valves that are sealed with MS-PLCS and PVLCS (SR 4.6.1.3f). The valves that are sealed with MS-PLCS and PVLCS are required to be tested at 11.5 psid and 33 psid, respectively, to determine the sealing air leakage into primary containment. This SR is required to be conducted every 18 months.

Thirty-five (35) valves are sealed by MS-PLCS and PVLCS and are required to be tested by TS SR 4.6.1.3f. Eleven (11) of these valves require an extension of the surveillance interval for a maximum of 46 days. The justification for this extension is provided in Enclosure 2.



The penetrations and valves requiring Type C testing pursuant to 10 CFR 50, Appendix J as addressed by TS SR 4.6.1.3d have been addressed by the request for exemption from the scheduler requirements of 10 CFR 50, Appendix J, Section III.D.3, which was submitted on this date under separate cover. Granting of the exemption will allow the TS SR 4.6.1.3d to be extended consistent with the exemption.

#### REVISED TECHNICAL SPECIFICATIONS

The requested revision to the Technical Specifications 4.4.3.2.2a, 4.6.1.3d, and 4.6.1.3f are shown on Attachment 3. This revision is a one-time only extension of the surveillance intervals to allow the surveillance testing to be performed during the fifth refueling outage scheduled to begin April 16, 1994.

#### SCHEDULE FOR ATTAINING COMPLIANCE

As indicated above, RBS is currently in compliance with the applicable Technical Specifications. The Technical Specification revisions are required prior to February 7, 1994, in order to avoid a unit outage to conduct the required surveillance tests as discussed herein.

#### NOTIFICATION OF STATE PERSONNEL

A copy of this amendment request has been provided to the State of Louisiana, Department of Environmental Quality - Radiation Protection Division.

#### ENVIRONMENTAL IMPACT APPRAISAL

GSU has reviewed the proposed license amendment request against the criteria of 10 CFR 51.22 for categorical exclusion from environmental review. The proposed changes to the Technical Specifications do not involve a significant hazards consideration, do not significantly change the types or significantly increase the amounts of effluents which may be released offsite, and do not significantly increase individual or cumulative occupational exposure. Based on the foregoing, GSU concludes that the proposed change meets the criteria given in 10 CFR 51.22(c)(9) for categorical exclusion from the requirement for environmental review.

ENCLOSURE 1  
JUSTIFICATION FOR EXTENSION OF SURVEILLANCE REQUIREMENT  
INTERVAL  
OF TECHNICAL SPECIFICATION 4.4.3.2.2a  
RCS PRESSURE ISOLATION VALVE LEAK TESTING

The Reactor Coolant System Leakage, Operational Leakage TS SR 4.4.3.2.2a requires that the reactor coolant system (RCS) pressure isolation valves (PIVs) be tested once per 18 months (plus an allowable extension of 25%). This testing involves a total of 16 valves. Five (5) of these valves require an extension of the surveillance interval for a maximum of 65 days.

Technical Specification 3.4.3.2 provides for an allowable leak rate of 0.5 gpm per nominal inch of valve size, up to a maximum of 5 gpm per valve at a RCS pressure of  $1025 \pm 15$  psig when tested pursuant to TS 4.0.5 and ASME Section XI, IWV-3427(B). Depending on the valve sizes, the allowable leak rate per valve ranges from three (3) to five (5) gpm.

The as-found leakage exhibited by the 5 valves requiring extension, as measured during the last refueling outage, was 0.0048 gpm. Previously, during the third refueling outage, these 5 valves exhibited an as-left leakage of approximately 0.332 gpm. This small difference can probably be attributed to the difference in the seating of the valves after closure prior to testing. But the small measured leakage during both tests shows that the valves are not subject to degradation over the 18-month period. In addition, at the last refueling outage, only 5 of the total complement of PIVs exhibited any leakage, and the total as-left leakage was 0.385 gpm which is well within the allowable leak rate.

It should be further noted that NUREG-1463, "Regulatory Analysis for the Resolution of Generic Safety Issue 105: Interfacing System Loss-of-Coolant Accident in Light Water Reactors" (July 1993), Section 2.5, "BWR Results" states:

"An ISLOCA analysis was performed as part of the GI-105 research program and is documented in NUREG/CR-5928. The work consisted of screening analyses and bounding calculations on the systems identified as potentially susceptible to an ISLOCA. A BWR/4 was examined, and the following systems were explicitly addressed: reactor core isolation cooling, high pressure coolant injection, core spray, RHR, reactor water cleanup, and control rod drive. The study concluded that ISLOCA is not a risk concern."

The above is applicable to RBS in that the design and accident response of a BWR/6 is very similar to a BWR/4 for this issue.



In addition, the River Bend Station Individual Plant Examination (IPE) (submitted to NRC by RBG-38,077 dated February 1, 1993), Section 3.4.4.2 states:

"The chance of an ISLOCA causing a harsh operating environment for ECCS equipment was found to be negligibly small and the risk posed by an ISLOCA given a normal operating environment for ECCS equipment (and thus generic failure probabilities for ECCS) is very small."

Based on a) the low as-found leak rate of the subject valves as measured during the last refueling outage, b) evidence from previous tests that the valves are not subject to degradation during the fuel cycle, c) the margin available from the previous as-left leak rate test (0.385 gpm) and the TS allowed leakage (3 to 5 gpm per valve), and d) the conclusion of NUREG-1463 and the confirmation of the RBS PRA that the ISLOCA (which is the rationale for the PIVs in the system design) is not a risk concern for BWRs, the extension of the surveillance interval for 65 days is justified.

ENCLOSURE 2  
JUSTIFICATION FOR EXTENSION OF SURVEILLANCE REQUIREMENT  
INTERVAL  
OF TECHNICAL SPECIFICATION 4.6.1.3f  
MS-PLCS AND PVLCS LEAKAGE INTO CONTAINMENT

Technical Specification SR 4.6.1.3f requires that the total sealing air leakage into containment, at a test pressure of 11.5 psid for MS-PLCS valves and 33 psid for PVLCS valves, be determined by test at least once per 18 months (plus an allowable extension of 25 %). Of the 35 valves which encompass this SR requirement, eleven (11) of the PVLCS valves require an extension in their surveillance interval for a maximum of 46 days. The valves requiring a surveillance interval extension constitute 31 % of the total number and do the Main Steam Isolation Valves (MSIVs) which were tested during a forced outage which occurred in the April to June 1993 period of this cycle.

The valves which require an extension exhibited an as-found leak rate of 53.85 standard cubic feet per hour (scfh) during testing at the last refueling outage. The as-left leak rate for these valves was 32.09 scfh. As cited in the River Bend Station Safety Evaluation Report, Supplement 2 (NUREG-0989), Section 6.2.1.3, analyses have determined that a constant 425 scfh of leakage from both the MS-PLCS and PVLCS sealed valves into containment is the maximum allowed to ensure a potential repressurization of containment is limited to less than 50 percent of containment design pressure during a 30 day period following Loss of Coolant Accident. However, as stated in NUREG-0989, Supplement 1, the TS 3.6.1.3c limit has been specified as 340 scfh, or 80 % of the acceptable inleakage. Following testing of the MSIVs during the aforementioned forced outage during this cycle, total leakage into containment on July 17, 1993 (utilizing the as-left leak rates determined during the last refueling outage for valves not retested during the forced outage) was determined to be 75.15 scfh.

Additionally, as stated in USAR Sections 6.7.2.2 and 9.3.6.3.2, if high flow from the MS-PLCS or PVLCS or low pressure at the pressurized boundary in the main steam line or the process line valves for PVLCS is detected, the systems will automatically isolate to prevent repressurization of containment.

Based on a) the low as-found and as-left leak rates for the valves requiring extension, b) low leakage determined at this mid-cycle period, c) the fact that the major contributors (MSIVs) are not a part of the extension, d) the inherent 20 % margin in the TS allowable leak rate value, and e) the system design which will isolate the MS-PLCS and PVLCS so that inleakage considerations can be maintained, the extension of 46 days for the surveillance interval for the remaining valves is justified.

## ATTACHMENT 2

### NO SIGNIFICANT HAZARDS CONSIDERATION

In accordance with the requirements of 10 CFR 50.92, the following discussion is provided in support of the determination that no significant hazards are created or increased by the change requested in the submittal.

1. The proposed change would not significantly increase the probability or consequences of an accident because:

The proposed TS change requests a one-time only extension of the surveillance intervals for the TS SR 4.4.3.2.2a, Reactor Coolant System Pressure Isolation Valve (PIV) leak testing; and TS SR 4.6.1.3f, MS-PLCS and PVLCS sealed valves leak rate testing.

Based on the discussion in the License Amendment Request which shows:

a) the Reactor Coolant System Pressure Isolation Valves (PIVs) exhibited low as-found leak rates as measured during the last refueling outage; evidence from previous tests show that the valves are not subject to degradation during the fuel cycle; there is substantial margin available for the PIVs from the as-left leakage (0.385 gpm) to the TS allowed leakage (3 to 5 gpm per valve, depending on valve size); the interval extension required (65 days) is small when compared to the overall surveillance interval allowed by TS (22.5 months); and, the conclusion of NUREG-1463 and the confirmation by the RBS IPE which cite the ISLOCA (for which PIVs are provided to prevent) is not a risk concern for BWRs; and

b) there is a limited number of MS-PLCS and PVLCS valves requiring interval extension (11 of a total of 35 valves), the valves requiring extension in their surveillance interval have previously had low as-found and as-left leak rates, there is substantial margin from the last mid-cycle determination of leakage to containment (75.15 scfh) to that allowed by TS (340 scfh), there is an inherent 20% margin in the TS allowable leak rate value and the value shown to be acceptable by analysis, and the interval extension requested (46 days) is a small part of the overall interval allowed by TS (22.5 months).

Therefore, from the above it is shown that the proposed change will not significantly increase the probability or consequences of an accident.

In addition, the one-time extension of the surveillance interval for Type C tests is consistent with the exemption request filed this date and is considered to be

administrative in nature. This fact, and the fact that extension to the surveillance interval is for a maximum of 35 days, provides assurance that the proposed change will not significantly increase the probability or consequences of an accident.

2. The proposed change would not create the possibility of a new or different kind of accident from any previously evaluated because:

The proposed TS change requests a one-time extension of the surveillance intervals for the Reactor Coolant System Pressure Isolation Valve leak rate tests and the measurement of MS-PLCS and PVLCS valve sealing air inleakage to containment. In that the requested extension durations are small as compared to the overall interval allowed by TS, the low as-found and as-left leak rate values of the valves as measured during the last refueling outage, and the substantial margins available from the last testing compared to the TS allowable values are substantial, the proposed change does not create the possibility of a new or different kind of accident from any accident previously analyzed.

In addition, the one-time extension of the surveillance interval for Type C tests is consistent with the exemption request filed this date and is considered to be administrative in nature. This fact, and the fact that extension to the surveillance interval is for a maximum of 35 days, provides assurance that the proposed change does not create the possibility of a new or different kind of accident from any accident previously analyzed.

3. The proposed change will not involve a significant reduction in the margin of safety because:

The proposed TS change requests a one-time extension of the surveillance intervals for the Reactor Coolant System Pressure Isolation Valves leak tests and the measurement of the MS-PLCS and PVLCS sealing air inleakage to containment. In that the requested extension durations are limited, the low as-found and as-left leak rate values of the valves as measured during the last refueling outage, and the margins provided from the last testing compared to the TS allowable values are substantial, the proposed change does not involve a significant reduction in the margin of safety.

In addition, the one-time extension of the surveillance interval for Type C tests is consistent with the exemption request filed this date and is considered to be administrative in nature. This fact, and the fact that extension to the surveillance interval is for a maximum of 35 days, provides assurance that the proposed change does not provide a significant reduction in the margin of safety.