



# GULF STATES UTILITIES COMPANY

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May 14, 1991  
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U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Gentlemen:

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

Gulf States Utilities Company (GSU) hereby files an application to amend the River Bend Station - Unit 1 Technical Specifications, Appendix A to Facility Operating License NPF-47, pursuant to 10CFR50.90. This application is filed to change Technical Specification 4.8.1.1 to adjust the starting time for the high pressure core spray (HPCS) diesel generator to 13 seconds. The attachment and enclosure to this letter provide the justification for this change and the proposed revisions to the Technical Specifications, respectively.

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

Sincerely,

W.H. Odell  
Manager - Oversight  
River Bend Nuclear Group

IAE/ILD/RMB/kvm

Attachment

Adol  
5/17/91

cc: U.S. Nuclear Regulatory Commission  
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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

W. H. Odell, being duly sworn, states that he is a Manager-Oversight for 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.

  
\_\_\_\_\_  
W. H. Odell

Subscribed and sworn to before me, a Notary Public in and for the State and Parish above named, this 14<sup>th</sup> day of May, 1991. My Commission expires with Life.

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

ATTACHMENT

GULF STATES UTILITIES COMPANY  
RIVER BEND STATION  
LICENSE NPF-47

AC SOURCES  
(91-04)

Licensing Document:

Technical Specifications:

Items: 4.8.1.1

Pages: 3/4 8-4, 3/4 8-7,  
3/4 8-8, 3/4 8-10

REASON FOR REQUEST

In accordance with 10CFR50.90, GSU requests a revision to the River Bend Station (RBS) Unit 1 Technical Specifications, Appendix A to Facility Operating License NPF-47. This change request would increase the required high pressure core spray (HPCS) Diesel Generator (DG) start from 10 to 13 seconds. GSU has determined this change will not affect the previous safety analysis and will increase the reliability of the DG.

DESCRIPTION

The HPCS consists of a single DG powered motor-driven pump and associated piping, valves, controls and instrumentation. The system is designed to pump water over the entire range of operating pressures and, thus, can spray water into the reactor even if the reactor pressure remains at or near normal levels. The water is injected into the vessel through nozzles in the upper plenum above and around the periphery of the core.

The function of the HPCS affected by this change is the response to a design basis LOCA and the ability to inject ECCS make-up water into the reactor vessel. The time interval required to achieve this function involves the following events which are necessary for compliance with 10CFR50.46 requirements: 1) DG start and attain sufficient speed/voltage for the system to operate, 2) start the pump, 3) open the injection valve to admit water to the reactor vessel. Because the starting of the pump is accomplished in approximately 2 seconds and is in parallel with the opening of the valve, the start of injection to the vessel begins upon the pump start and valve opening. Full flow is achieved when the valve is fully open. This assumption is assured by the keep fill system on the HPCS discharge line. Therefore the only times of merit in this analysis are the DG start and the valve opening.

GSU has incurred a number of DG starts which are in excess of the 10 second limit but less than 13 seconds. GSU has determined that an increase in the required DG start time will not affect the safety of the plant and will decrease the stress and wear on the DG.

The HPCS system is described in Section 6.3.2.2.1 of the Safety Analysis Report (SAR) with additional design information included in Sections 8.3.1.1.3 'HPCS DG' and 9.5.6.1 'HPCS power supply system'. The design basis of the system affected by this request is contained in Section 15.6.5 'Loss of Coolant Accidents (LOCA)'. The major components of the HPCS system addressed by this change are the DG, pump and the injection valve '1E22\*F004 (F004)'. The analysis contained in the current SAR remains as originally proposed by GSU which was reviewed and accepted by the NRC in Supplement 2 to the Safety Evaluation Report (SER). This analysis requires the HPCS to attain design flow and pressure within 30 seconds after a design basis LOCA concurrent with a loss of offsite power. In the licensing calculations the DG is assumed to be activated by the low water level in the reactor with no credit taken for the high drywell signal. The low water signal (level-2) is reached in about 3 seconds from the occurrence of the line break. With a 10 second DG start time, the electrical supply bus is powered in 13 seconds. In addition to the above, no credit is taken for the make-up water in the calculations until the F004 valve is fully open; therefore, HPCS flow to the reactor vessel does not commence until 30 seconds. The significant items and time periods in the SAR analysis are illustrated in Figure 1 and summarized as follows:

<u>ITEM</u>	<u>TIME</u> (seconds)	<u>TOTAL TIME</u>
LOCA start	0	0
HPCS start signal	3	3
F004 open/pump start	12/13	15
Full injection	--	30

Note: The pump start is in parallel with the valve opening.

The above information illustrates there exists in the present analysis a total of 15 seconds for the HPCS DG to start and reach rated conditions. The present technical specification (TS) requirements contained in specification 4.8.1.1 require the DG reach these conditions within 10 seconds; therefore there exists a 5 second margin within the present analysis without any changes to the response of the plant. This margin is also not required to support any analysis or affect any required function assumed in the SAR including those calculated in accordance with 10CFR50.46 under 10CFR50 Appendix K assumptions. As a result, an increase in the HPCS DG starting time from 10 to 13 seconds will not change the calculated effects to the public and therefore remains within the original licensing basis.

An additional change to Specification 4.8.1.1.2.h to revise the acceptance criteria for DG 1C from 900 to 882 rpm is also requested. This is based on the frequency acceptance criteria of 58.2 Hz which is equivalent to 882 rpm. The time to reach this speed will remain at 10 seconds which is enveloped by the requested 13 second start time.

In addition to the technical changes above, GSU requests an editorial change to Specification 4.8.1.1.2.a.4.b to remove the statement "...greater than 3740 volts and 58.8 Hz within 10 seconds and ...". This statement is redundant to the normal requirements of 4160 +/- 420 volts and 60 +/- 1.2 Hz already contained in the specification.

The proposed Technical Specification changes are also identical to the current Technical Specifications for Perry Nuclear Power Plant, Unit-1 (NPF-58). Diesel Generator 1C at River Bend is identical to the Division 3 Diesel Generator at Perry Nuclear Power Plant.

#### NO SIGNIFICANT HAZARDS CONSIDERATION

As required by 10CFR50.92, the following is provided to the NRC in support of a "No Significant Hazards Considerations" determination.

##### I. Probability or Consequences of an Accident Previously Evaluated:

The current design of River Bend Station requires that the high pressure core spray (HPCS) system be injecting water into the reactor pressure vessel 30 seconds after a design basis Loss of Coolant Accident (LOCA). Three seconds after the LOCA occurs, a start signal is given to the HPCS system. The remaining 27 second time period allows the Division III (HPCS) diesel generator (DG) to start, the HPCS pump to start, and the HPCS injection motor operated valve (MOV) to open. Of these three major activities, the HPCS DG start timing and the HPCS injection MOV stroke time are the only two activities that occur in series. The basic sequence that is followed during a HPCS system initiation without offsite power is that the first ten seconds is used by the HPCS DG to start, accelerate to running speed, flash the generator field, and close the DG output breaker. Once power is restored to the bus, the HPCS injection MOV receives power and starts to open. The design required stroke time for this valve is twelve seconds. Therefore, the current total time required to start and complete the initiation sequence for the HPCS system is 22 seconds. The proposed change would allow the HPCS DG to start and accelerate to 882 RPM with DG output breaker closure occurring within 13 seconds of receipt of the initiation signal. Once power was restored to the bus, the HPCS injection MOV would still stroke open in twelve seconds. This would result in a total time from receipt of injection signal to injecting water into the reactor vessel of 25 seconds. The new time sequence is still within the existing analysis for the HPCS system of 27 seconds. Therefore, this change does not increase the possibility or consequences of an accident because the proposed change reallocates some of the margin in the existing design of the high pressure core spray system.

##### II. Possibility of a New or Different Kind of Accident:

The proposed change to the HPCS DG start timing will not create any new accident scenarios because no new equipment is required to implement the

change. Therefore, no new accident scenarios are created.

### III. Margin of Safety:

The current design requirement for the HPCS system to respond to an initiation signal when offsite power is lost is 27 seconds. The 27 second time period allows the diesel generator to start, close the DG output breaker, open the HPCS injection MOV, and allow cooling water to flow into the reactor under high pressure. A reduction in the margin of safety would occur if the time required to complete these actions were to increase above 27 seconds. With a 13 second HPCS diesel generator start, the allowed time for these actions to occur is increased from 22 to 25 seconds. However, since this remains less than the design requirement of 27 seconds, the technical specification margin of safety has not been reduced.

As discussed above the proposed change does not increase the probability or consequences of a previously evaluated accident and will not create a new or different kind of accident. Also, because adequate margin has been shown with respect to all design limits, the proposed change does not result in a reduction to the margin of safety. Therefore, GSU concludes there are no significant hazards involved.

### REVISED TECHNICAL SPECIFICATION

The requested revisions are provided in Enclosure I.

### SCHEDULE FOR ATTAINING COMPLIANCE

River Bend Station is currently in compliance with this specification. The modifications to the HPCS Diesel Generator will be implemented within 60 days after receiving the approved amendment.

### 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.

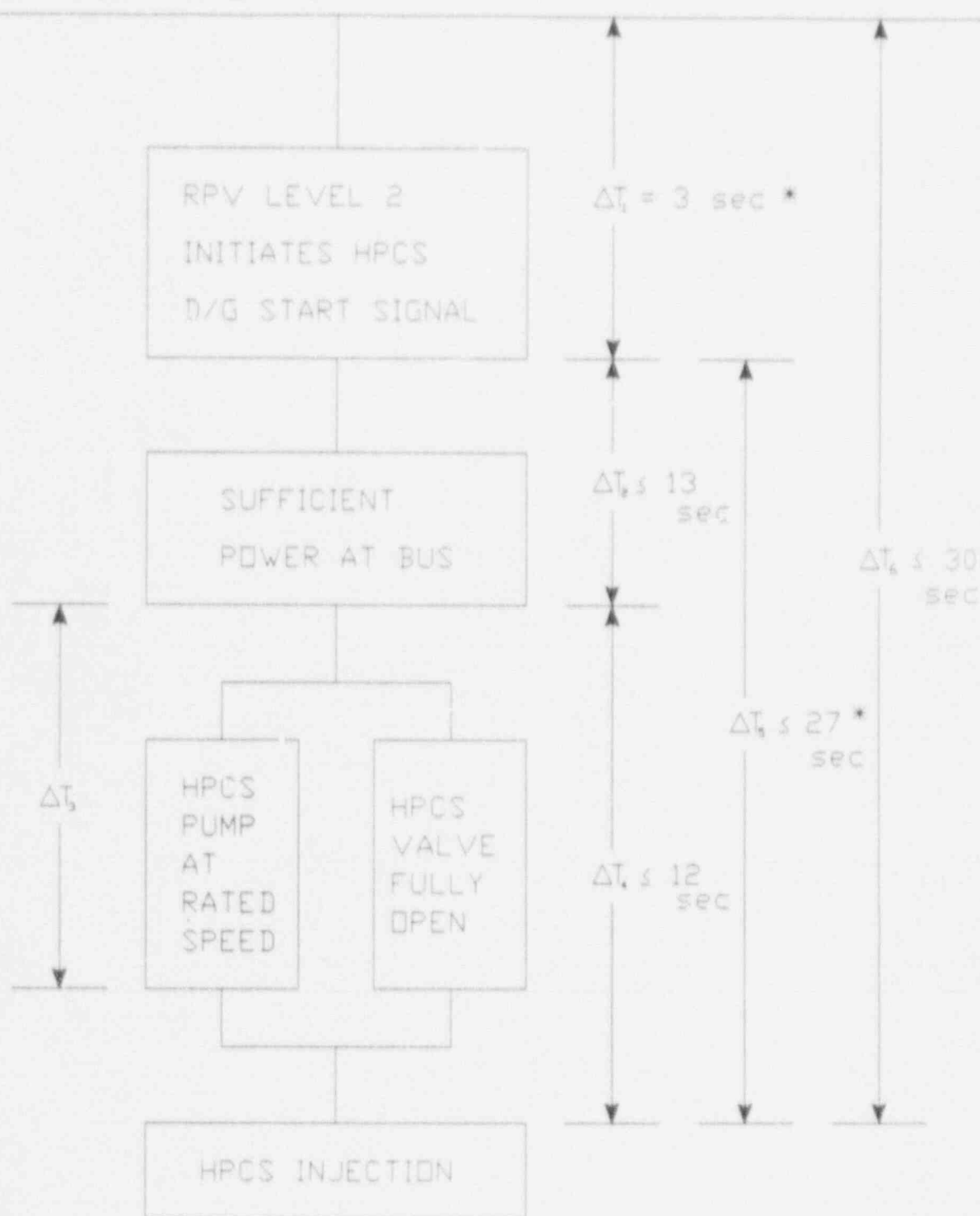
### ENVIRONMENTAL IMPACT APPRAISAL

Gulf States Utilities (GSU) has reviewed the proposed license amendment request against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Thus, GSU concludes that the proposed change meets the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

FIGURE 1

# HPCS SYSTEM TIME COMPONENTS FOR LOCA MITIGATION

DBA - LOCA (TIME = 0)



\* USED IN LOCA ANALYSIS