



**GULF STATES UTILITIES COMPANY**

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775  
AREA CODE 504 836-6094 346-8051

October 12, 1990  
RBG- 33774  
File No. G9.5, G9.42

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 (GSU) Company 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 Table 3.8.4.1-1, "Primary Containment Penetration Conductor Overcurrent Protection Devices," to relocate the overcurrent protection breaker for the reactor water cleanup system (RWCU) precoat pump. The Attachment to this letter and Enclosure provide the justifications and proposed revisions to the Technical Specifications.

Your prompt attention to this application is appreciated.

Sincerely,

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

WHO/DAE/LED/SMB/ns

Attachment

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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

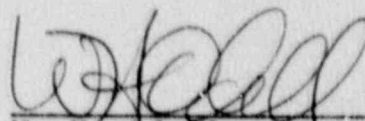
STATE OF LOUISIANA )  
PARISH OF WEST FELICIANA )  
In the Matter of )  
GULF STATES UTILITIES COMPANY )

Docket No. 50-458

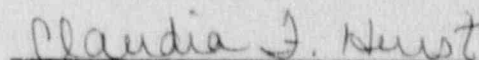
(River Bend Station - Unit 1)

**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 12<sup>th</sup> day of October, 1990. My Commission expires with Life.

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

ATTACHMENT

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

ELECTRICAL EQUIPMENT PROTECTIVE DEVICES  
(90-19)

LICENSING DOCUMENT INVOLVED:

TECHNICAL SPECIFICATIONS

ITEM: TABLE 3.8.4.1-1

PAGE: 3/4 8-29, 32

REASON FOR REQUEST:

GSU requests a change to Specification 3.8.4.1 to relocate the Primary Containment Overcurrent Protection breaker for the reactor water cleanup system (RWCU) precoat pump. This change is necessary to allow design improvements to be implemented during the current refueling outage (RF). The RWCU system is necessary for power operations and therefore GSU requests this change be approved prior to startup from the current refueling outage. The RWCU motor performs no safety related function and no safety related systems, other than the containment penetrations, are affected by this modification. The scheduled completion date for this outage is November 25, 1990.

DESCRIPTION:

The RWCU system is necessary for plant operation to remove water impurities in the reactor coolant pressure boundary and the loss of the system would soon result in a plant shutdown as required by Specification 3.4.4. The system operation is described in Section 5.4.8 of the River Bend Station (RBS) USAR.

During the last two operating cycles RBS has been experiencing poor RWCU demineralizer performance. As a result of continuing efforts to improve the system operation a number of enhancements have been identified. One of the items is a modification (MR) to increase the size of the RWCU precoat pump. This pump is not a safety related component but is located in the containment. Therefore, the power supply containment penetration must be protected to ensure no loss of containment integrity. GSU engineering has been working expeditiously to complete the MR to support the current outage. As part of this review it was recently determined the MR will require a revision to the Primary Containment Penetration Conductor Overcurrent Protection Devices specification. The design is in accordance with all applicable technical specification bases and design criteria. These devices are identified in Specification 3.8.4.1 Table 1 sections C.1 and C.4.

Containment electrical penetrations are part of the primary containment pressure boundary. As such, the short circuit power to the feed through conductors must be limited to prevent penetration seal degradation. The technical specifications require that circuits which run through these penetrations have protective devices installed to prevent overcurrent conditions.

As described in the River Bend Station (RBS) Updated Safety Analysis Report (USAR) Section 8.3.1.1.4.3, containment electrical penetration assemblies are designed to withstand, without loss of mechanical integrity, the maximum fault current versus time condition which could occur because of single random failure of circuit overload protective devices. No single failure causes excessive current in penetration conductors which degrade penetration seals. All protective devices automatically disconnect power to the penetration conductors when currents through the conductors exceed the established protection limits. Electrical penetrations containing 480V power circuits are nominally rated to carry 180 percent of full load current continuously with all other circuits in the same penetration operating at full load.

Overload protection of electrical penetration 480V motor control center power circuits is provided by a series connected molded case circuit breaker and fuse, each rated to open the circuit during overload conditions, thus providing redundant protection. The circuit protection design provided for the increased capacity motor in this proposed change conforms to these requirements. The requested change will remove load 1G36-C002 from Section C.1 location:1NHS-MCC2E, cubicle:2B and add the load to Section C.4 location:1NHS-MCC2D, cubicle:1E. Additionally, the design is similar to the as-built configurations for the remaining circuits listed on Technical Specification Table 3.8.4.1-1 Section C.5 which has a higher current cable design than C.4.

The original design for River Bend's RWCU filter demineralizes included wedgewire type septa with a precoat pump maximum flow capacity of 200 GPM. During cycle 2, gradual plugging of the wedgewire septa occurred with frequent occurrence of resin breakthrough and poor demineralizer performance. It was determined that replacement of the wedgewire septa with porous metal septa should be performed during RF2. Following installation of the porous metal septa, poor demineralizer performance continued manifesting itself requiring frequent backwashes due to high differential pressure. An in depth study was performed to attempt to ascertain the root cause of these problems. Several design and maintenance issues were identified. The following design problems were identified as a result of this investigation:

1. Inadequate vent design which did not allow all of the air to vent past the tubesheet.
2. Design flowrate of 200 GPM could not be obtained due to a plugged check valve.
3. Inadequate upward housing velocity to properly coat the porous metal septa also requiring a larger pump (350-400 GPM vs. design 200 GPM).

Due to the above conditions, GSU determined that the pre-coat material had not been properly distributed on the porous metal septa. This condition resulted in poor demineralizer performance and the bare septa being exposed to reactor coolant which caused partial plugging of the media. The final configuration of the solutions were determined in late August 1990, with final design work proceeding at that time. During the final design, it was discovered the increase in reactor size will require a significantly larger

protection breaker (Gould type 80 , FVNR size 3) which could not be installed in panel 1NHS-MCC2E due to physical size and electric load restrictions. This determination was recently made and efforts to accommodate the breaker in the same panel location would require significant additional work and other license amendments. Therefore, this request is the minimum necessary to complete the MR. The RWCU problems are being addressed in the form of the following design modifications:

A design review was performed which determined that the plugged check valve was not required. The internals to the valve were removed thereby eliminating the problem with the valve sticking.

The existing porous metal septa, which are now at least partially fouled, are to be replaced during RF3 with new porous metal septa incorporating a new vent design.

The precoat flowrate will be increased during RF3 from 260 GPM to 350-400 GPM by providing a larger pump motor. (The flowrate was previously increased from 200 GPM to 260 GPM by replacing the pump impeller. No further flowrate increase is possible without providing a larger pump motor.)

The resulting benefit from these modifications are anticipated to be the following:

1. Increased run time of the demineralizers resulting in lesser volumes of radwaste,
2. Fewer backwash cycles resulting in less operator exposure to perform the backwash,
3. Improved performance of the demineralizer resulting in better reactor coolant chemistry and lower dose rates throughout the plant as a result,
4. Fewer backwash cycles resulting in less manipulation of automatic valves and therefore, less maintenance of equipment resulting in less radwaste and lower maintenance exposure.

The MR initiated to increase the design flow capacity to 350-400 GPM will also aid in extending the life of the septa and therefore improve RWCU effluent water quality to the reactor vessel. The motor for the precoat pump (1G36-PC002) will be changed from the existing 10 HP, 1750 RPM motor to a 50 HP, 3500 RPM motor, this increase requires the power to be moved from the present load center. Power to the new motor will be from 1NHS-MCC2D Cubicle 1E. This is not a safety related power source since the pump is not required to perform any safety functions. However, the power cable must pass through a containment penetration in order to get to the pump. As a result Technical Specification Table 3.8.4.1-1 must be revised to include the above information.

Because the MR will result in an enhancement of reactor water quality and reduction of maintenance and radioactive waste GSU request this change be reviewed rapidly as possible to support startup from the current refueling outage. The present system outage schedule plans for installation of the

pump and related RWCU changes is to begin in late October. As additional information, the technical justification contained in this submittal is very similar to that submitted in support of Amendment 40 to NPF-47 dated June 23, 1989 (RBG-31140).

SIGNIFICANT HAZARDS CONSIDERATION:

In accordance with requirements of 10CFR50.92, the following discussion is provided in support of the determination that No Significant Hazards are created or increased by the changes proposed in this amendment request.

1. No significant increase in the probability or consequences of an accident previously evaluated results from the proposed change because:

The equipment involved in this request resides in the non-safety related, low pressure portion of the RWCU system and is located outside of the reactor coolant pressure boundary. The precoat pump is only operated when each of the demineralizer/filter trains are isolated and to be regenerated. The equipment involved in this request is not involved in any analyzed accident nor called upon to mitigate the consequences of any event.

The conduit, cable and equipment associated with this modification are being installed in accordance with all applicable seismic and electrical separation criteria. As such, adequate electrical protection in conformance with the Technical Specification Bases and USAR Section 8.3.1.1.4.3 is provided for all containment penetrations used. Operation or failure of the pump equipment installed by this modification has no impact on any safety related system. Because this proposed change does not result in any new plant operating modes and electrical penetration overcurrent protection is provided as described in the USAR, this proposed change cannot increase the probability or consequences of any accident previously evaluated.

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

A single failure of the equipment installed by this modification would at worst case be a loss of power to motor control center (MCC) 1NHS-MCC2E. Loss of this non-safety related MCC is assumed by the USAR during design basis accident conditions and is therefore, as previously analyzed. No other new, credible failure modes can be identified. The circuit protection design is similar to the remaining circuits identified in Section C.4 already listed on Technical Specification Table 3.8.4.1-1. Additionally, this proposed change does not introduce any new plant operating modes. Therefore, this proposed change can not create the possibility of a new or different kind of accident from any previously evaluated.

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

Overcurrent protection is provided such that no single failure will cause excessive current in the penetration conductors. This ensures that the overcurrent protection is in accordance with the RBS USAR.

Additionally, the circuit protection design is similar to the remaining circuits identified in section C.4 already listed on Technical Specification Table 3.8.4.1-1. The RWCU system performs no safety related function and no safety related systems, other than the containment penetrations, are affected by this modification. Further, the proposed change does not result in any new plant operating modes. Therefore, the proposed change does not result in any reduction in the margin of safety.

Based on the above considerations, the proposed change does not increase the probability or the consequences of a previously evaluated accident, does not create the possibility of a new or different kind of accident from any previously evaluated, and does not involve a reduction in the margin of safety. Therefore, Gulf States Utilities Company proposes that no significant hazards are involved.

REVISED TECHNICAL SPECIFICATIONS:

The requested revisions are provided in the Enclosure.

SCHEDULE FOR ATTAINING COMPLIANCE:

This change is being installed during the current refueling outage. Technical Specifications 3.8.4.1 provides surveillances for properly designed circuits to ensure operability. With this assurance of operability, the Technical Specifications allow the circuits to be energized in Operational Conditions 1, 2, and 3. Since these circuits have not yet been added to the list of qualified overcurrent protective devices, GSU will not be able to energize and operate this system during power operations. Because this system will be needed approximately every 7 to 14 days during operation this change will be necessary prior to startup from this outage, currently scheduled for November 25, 1990.

NOTIFICATION OF STATE PERSONNEL:

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

ENVIRONMENTAL IMPACT APPRAISAL:

Gulf States Utilities Company (GSU) has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. As shown above, 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. Based on the foregoing, GSU concludes that the proposed changes meet the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.