

GULF STATES UTILITIES COMPANY

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775

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August 22, 1990

RBG- 33429

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U.S. Nuclear Regulatory Commission
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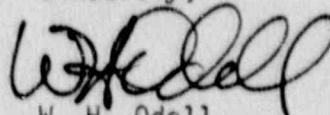
Gentlemen:

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 revise Technical Specification 3/4.7.1.2, "Ultimate Heat Sink," to increase the ultimate heat sink basin temperature from 82°F to 88°F. The Attachment to this letter and the Enclosure provide the justifications and proposed revisions to the Technical Specifications, respectively.

Your prompt attention to this application is appreciated.

Sincerely,



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


LAE/LLD/MSF/ns

Attachment

cc: U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

NRC Resident Inspector
P.O. Box 1051
St. Francisville, LA 70775

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

STATE OF LOUISIANA)

PARISH OF WEST FELICIANA)

In the Matter of)

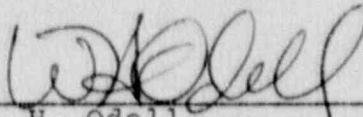
GULF STATES UTILITIES COMPANY)

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 22nd day of August, 1990. My Commission expires with Life.



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

ATTACHMENT

PROPOSED GULF STATES UTILITIES COMPANY DOCKET 50-458/LICENSE NO. NPF-47

ULTIMATE HEAT SINK (90-15)

LICENSING DOCUMENT INVOLVED:

TECHNICAL SPECIFICATIONS

ITEM: 3/4.7.1.2

Pages 3/4 7-3 and 7/4

REASON FOR REQUEST:

In accordance with 10CFR50.90, a change is being requested to modify the temperature limit of the ultimate heat sink water (standby service water) storage basin from 82°F, as specified in Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.1.2.b and Surveillance Requirement 4.7.1.2.b, to 88°F. Analysis has been performed which demonstrates that an increase of the ultimate heat sink basin temperature from 82°F to 88°F will have no adverse effect on the plant response to the design basis accident.

DISCUSSION:

Due to initial conservatisms that have been determined to be unduly restrictive, Gulf States Utilities Company (GSU) believes that the TS limit on the ultimate heat sink basin temperature should be increased from 82°F to 88°F. The original design-basis temperature for the basin was evaluated solely on environmental factors and was completed before more realistic plant operational experience could be obtained. This proposed change will permit GSU to utilize the ultimate heat sink to cool plant equipment when it is necessary to remove the normal service water system from service for required maintenance, and when the normal service water temperature nears its design limit of 95°F and adequate temperature differentials are unobtainable. (cf. GSU request for Waiver of Compliance dated June 22, 1990; RBG-33102.)

PRESENT DESIGN:

River Bend Station (RBS) Safety Analysis Report (SAR), Section 9.2.5 states that the ultimate heat sink is designed to provide sufficient cooling water to permit safe shutdown and cooldown of the plant and to maintain it in a cold shutdown condition when the normal cooling towers are unavailable. Cooling water for normal station operation, including shutdown, is provided by the normal cooling towers. The capacity of the ultimate heat sink water storage basin is designed to provide necessary cooling for the period of time (30 days) needed to evaluate the situation, take corrective action to mitigate the consequences of an accident, and, if required, to take any measures to permit water replenishment.

The maximum allowable cold water temperature is 95°F, corresponding to the value assumed for evaluation of the containment heat removal systems and the ability to maintain the reactor return water from the residual heat removal heat exchangers at a temperature less than 105°F.

The maximum rate of heat rejection to standby service water from all sources is 1.435×10^8 Btu/hr and occurs 5.0 hr after shutdown. This corresponds to a maximum service water supply temperature of 89°F at 12,197 gpm flow.

The cooling tower storage facility has a capacity of approximately 6,435,600 gal at the minimum basin water level of 111 ft 10 in. During the first 30 days of operation following a DBA, approximately 6,000,000 gal of water are lost due to evaporation and drift. The remaining 435,600 gal of water are used as a design safety margin. The makeup water required after 30 days of operation is a maximum of 164,000 gal/day.

NUREG-0989, "Safety Evaluation Report for the Operation of River Bend Station," dated May 1984, Section 2.4.11.2, states that the cooling tower and basin are designed to provide emergency cooling for 30 days following a design-basis accident. Using the maximum mean 1-day wet bulb temperature from 29 years of data, a maximum cooling tower return water temperature of 90.6°F was computed, which is well below the maximum allowable return water temperature of 95°F (which is required to keep the reactor return water temperature below 105°F). The estimated maximum water losses, including drift and natural and forced evaporation during the 30 worst days, is 6,295,000 gallons, leaving 205,000 gallons as a design safety margin.

Supplement 1 to NUREG-0989, dated October 1984, states that since the SER was written, the staff contractor, Argonne National Laboratory (ANL), has completed an analysis of the thermal performance of and evaporative losses from the mechanical draft cooling towers that make up the ultimate heat sink. The results of the analysis showed that the maximum temperature in the tower basin was 89.9°F, which is well below the maximum allowable return temperature of 95°F cited by the applicant. The evaporative losses after 30 days of the worst case meteorological conditions for evaporation was a little over 6 million gallons, leaving 443,000 gallons in the basin. On the basis of these results, the staff concludes that the plant meets the requirements of RG 1.27 and GDC 44.

Supplement 2 to NUREG-0989, dated August 1985, states that since Supplement 1 of the SER was published, the applicant has made significant changes in the operation of the standby mechanical draft cooling tower. The cooling tower fans will no longer go on automatically in the event of an accident requiring emergency cooling. Instead, the fans will be started manually, after a delay, to reduce the load on the diesel generators. The applicant has stated that following a design-basis accident, during the worst meteorological conditions a delayed fan start of up to 2 hours will still maintain tower return temperatures below the design basis temperature of 95°F. The staff's contractor, ANL, has completed an analysis which independently confirms the applicant's calculations. The staff concludes that the plant still meets RG 1.27 and GDC 44 even with the delayed fan start.

PROPOSED DESIGN:

GSU calculations, using the same methodology as that previously reviewed by the staff, demonstrate that the basin water temperature limit can be increased to 88°F. At this initial temperature and assuming the same maximum rate of heat rejection to the standby service water from the plant, the ultimate heat sink will still be capable of providing sufficient

cooling for 30 days to permit safe shutdown of the unit and to maintain it in a safe shutdown condition and in the event of an accident to limit the affects of that accident safely and to maintain it in a safe shutdown condition. With an initial ultimate heat sink basin temperature of 88°F and after 30 continuous days of operation, calculations show that the basin will lose, due to evaporation, drift, forced evaporation and leakage from the penetration valve leakage control system compressors, 6,039,000 gallons of water. This would result in 409,600 gallons remaining at the end of the 30 day period, providing adequate net positive suction head for the standby service water pumps. Also, calculations show that the ultimate heat sink will deliver water to its safety-related loads at a temperature less than or equal to 95°F during normal or accident conditions. This maximum service water supply temperature is 92°F, calculated to occur just prior to the start of the cooling tower fans. The ultimate heat sink initial basin temperature proposed change to 88°F has been evaluated for its effect on the plant ultimate heat sink and found to fully satisfy the design basis for the plant and found to conform with Regulatory Guide 1.27, "Ultimate Heat Sinks for Nuclear Power Plants."

Therefore, GSU believes that the Technical Specification limit for the ultimate heat sink basin can be increased to 88°F and provide adequate protection to the health and safety of the public.

SIGNIFICANT HAZARDS CONSIDERATION:

In accordance with the requirements of 10CFR50.92, the following discussions are provided in support of the determination that no significant hazards are created or increased by the change proposed in this submittal.

1. The proposed change would not increase the probability or consequences of a previously evaluated accident because:

Calculations performed by GSU have demonstrated that the ultimate heat sink will be capable of providing sufficient cooling for 30 days to permit safe shutdown of the unit and to maintain it in a safe shutdown condition, and, in the event of an accident, to limit the affects of that accident safely and to maintain it in a safe shutdown condition to meet the design requirements of the system and to conform with Regulatory Guide 1.27.

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

The proposed change would only revise an operating limit on the maximum standby cooling tower basin temperature. The proposed change would not change any operation, action or plant decision needed to maintain the unit in a cold shutdown condition. Engineering calculations have demonstrated that this increase in ultimate heat sink basin initial temperature does not have an adverse affect on the safe operation of River Bend Station.

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

The margin of safety is inherently designed into the requirement that the standby service water be delivered to the plant at a

temperature not to exceed 95⁰F. This amendment does not change this requirement and therefore does not decrease the margin of safety.

REVISED TECHNICAL SPECIFICATIONS:

The requested revision is provided in the Enclosure.

SCHEDULE FOR ATTAINING COMPLIANCE:

River Bend Station is currently in compliance with the applicable Technical Specification requirements and requests approval of this change to the Technical Specifications be granted as soon as possible.

NOTIFICATION OF STATE PERSONNEL:

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

ENVIRONMENTAL IMPACT APPRAISAL:

GSU has reviewed the proposed license amendment 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. Based on the foregoing, GSU concludes that the proposed change meets the criteria given in 10CFR51.22(c)(2) for a categorical exclusion from the requirement for an Environmental Impact Statement.

ENCLOSURE