Docket No. 50-458 November 2, 1987

Mr. James C. Deddens
Senior Vice President, (RBNG)
Gulf States Utilities
P. O. Box 220
St. Francisville, LA 70775
ATTN: Nuclear Licensing

Dear Mr. Deddens:

SUBJECT: RIVER BEND STATION, UNIT 1, AMENDMENT NO. 15 TO FACILITY OPERATING LICENSE NO. NPF-47 (TAC NO. 65130)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 15 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated August 4, 1986 as amended August 15, 1986, supplemented September 26, 1986, amended September 8, 1987 and supplemented October 8, 1987.

This amendment revises Attachment 3 to the River Bend license regarding maintenance and surveillance for the TDI emergency diesel generators. License condition 2.C(8) requires that Gulf States Utilities implement the TDI diesel requirements as specified in Attachment 3.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/S/

Walter A. Paulson, Project Manager
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 15
to License No. NPF-47
2. Safety Evaluation

cc w/enclosures:
See next page
DISTRIBUTION

Docket File	NRC PDR	Local PDR	PD4 Reading
F. Schroeder	J. Calvo	P. Noonan	W.Paulson
OGC-Beth	D. Hagen	E. Jordan	J. Partlow
T. Barnhart (4 cys for each docket No.)		W. Jones	E. Butcher
ACRS (10)	GPA/PA	ARM/LFMB	LFMB
PD4 Plant file			

LTR NAME: RIVER BEND AMENDMENT TAC 65130

PD4/LA	PD4/PM	SRLB	OGC-Bethesda	PD4/D
PNoonan	WPaulson:	JCraig		JCalvo
10/14/87	10/14/87	10/14/87	10/27/87	11/2/87

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P PDR

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

GULF STATES UTILITIES COMPANY

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 15
License No. NPF-47

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for amendment filed by Gulf States Utilities Company, dated August 4, 1986 as amended August 15, 1986, supplemented September 26, 1986, amended September 8, 1987, and supplemented October 8, 1987, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;

   C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to license condition 2.C(8), Attachment 3 to Facility Operating License No. NPF-47. Attachment 3 is hereby amended to read as follows:

ATTACHMENT 3
TO-NPF 47
TDI DIESEL ENGINES REQUIREMENTS

GSU shall comply with the following requirements related to the TDI diesel engines.

1. Change to the maintenance and surveillance program for the TDI diesel engines, as identified and approved by the NRC staff in Supplement 3 to the SER, shall be subject to the provisions of 10 CFR 50.59.

   The frequency of the major engine overhauls referred to in the license conditions below shall be consistent with Section IV.1. "Overhaul Frequency" in revision 2 of Appendix II of the Design Review/Quality Revalidation report which was transmitted by letter dated May 1, 1986, from J. George, Owners Group, to H. Denton, NRC.

2. Crankshafts shall be inspected as follows:

   SD 1B: During the first refueling outage, inspect the fillets and oil holes of the three most heavily loaded crankpin journals (Nos. 5, 6, and 7) with florescent liquid penetrant and ET as appropriate.

   SD 1A and 1B: During the second and third refueling outages, inspect the fillets and oil holes of two of the three most heavily loaded crankpin journals in the manner just mentioned.

   SD 1A and 1B: At approximate 5 year intervals subsequent to the third refueling outage, inspect the fillets and oil holes using florescent liquid penetrant and ET as appropriate, of the : a) three most heavily loaded crankpin journals (Nos. 5, 6, and 7), and b) main journals locatd between crankpin journals 5, 6, and 7. One engine may be inspected at the refueling outage closest to 5 years, and the other engine at the next refueling outage.

   If cracks are found during inspections of crankshafts, this condition shall be reported promptly to the NRC staff and the affected engine shall be considered inoperable. The engine shall not be restored to "operable status" until the proposed disposition and/or corrective actions have been approved by the NRC staff.

3. Cylinder blocks shall be inspected for "ligament" cracks, "stud-to-stud" cracks and "stud-to-end" cracks as defined in a report* by Failure Analysis Associates, Inc. (FaAA) entitled, "Design Review of TDI R-4 and RV-4 Series Emergency Diesel Generator Cylinder Blocks" (FaAA report no. FaAA-84-9-11.1) and dated December 1984. (Noted that the FaAA report specifies additional inspections to be performed for blocks with "known"

* This report was transmitted to H. Denton, NRC, from C. L. Ray, Jr., TDI Owners Group, by letter dated December 11, 1984.

or "assumed" ligament cracks). The inspection intervals (i.e., frequency) shall not exceed the intervals calculated using the cumulative damage index model in the subject FaAA report. In addition, inspection method shall be consistent with or equivalent to those identified in the subject FaAA report.

In addition to inspections specified in the aforementioned FaAA report, blocks with "known" or "assumed ligament cracks" (as defined in the FaAA report) should be inspected at each refueling outage to determine whether or not cracks have initiated on the top surface exposed by the removal of two or more cylinder heads. This process should be repeated over several refueling outages until the entire block top has been inspected. Liquid-penetrant testing or a similarly sensitive nondestructive testing technique should be used to detect cracking, and eddy current should be used as appropriate to determine the depth of any cracks discovered.

If inspection reveals cracks in the cylinder blocks betwen stud holes of adjacent cylinders ("stud-to-stud" cracks) or "stud-to-end" cracks, this condition shall be reported promptly to the NRC staff and the affected engine shall be considered inoperable. The engine shall not be restored to "operable status" until the proposed disposition and/or corrective actions have been approved by the NRC staff.

4. The following air roll test shall be performed as specified below, except when the plant is already in an Action Statement of Technical Specification 3/4.8.1, "Electric Power Systems, A.C. Sources":

The engines shall be rolled over with the airstart system and with the cylinder stopcocks open prior to each planned start, unless that start occurs within 4 hours of a shutdown. The engines shall also be rolled over with the airstart system and with the cylinder stopcocks open after 4 hours, but no more than 8 hours, after engine shutdown and then rolled over once again approximately 24 hours after each shutdown. (In the event an engine is removed from service for any reason other than the rolling over procedure prior to expiration of the 8-hour or 24-hour periods noted above, that engine need not be rolled over while it is out of service. The licensee shall air roll the engine over with the stopcocks open at the time it is returned to service.) The origin of any water detected in the cylinder must be determined and any cylinder head which leaks due to a crack shall be replaced. The above air roll test may be discontinued following the first refueling outage subject to the following conditions:

- All cylinder heads are Group III heads (i.e., cast after September 1980).

- Quality revalidation inspections, as identified in the Design Review/Quality Revalidation report, have been completed for all cylinder heads.

- Group III heads continue to demonstrate leak free performance. This should be confirmed with TDI before air roll tests are discontinued.

5. The following actions are required if SD 1A or SD 1B is operated in excess of 3130 KW(1):

   a) For indicated engine loads in the range of 3130 KW to 3200 KW for a period less than two hours(2), no additional action shall be required.

   b) For indicated engine loads in the range of 3130 KW to 3200 KW for a period equal to or exceeding two hours(2), a crankshaft inspection pursuant to Item d below shall be performed at the next refueling outage.

   c) For indicated engine loads in the range of 3200 KW to 3500 KW for a period less than 1 hour(2), a crankshaft inspection pursuant to item d below shall be performed for the affected engine at the next refueling outage.

   d) For indicated engine loads in the range of 3200 KW to 3500 KW for periods equal to or exceeding one hour(2) and for engine loads exceeding 3500 KW for any period of time, (1) the engine shall be removed from service as soon as safely possible, (2) the engine shall be declared inoperable, and (3) the crankshaft shall be inspected. The crankshaft inspection shall include crankpin journal numbers 5, 6, and 7 (the most heavily loaded) and the two main journals inbetween using florescent liquid penetrant and eddy current as appropriate.

6. Periodic inspections of the turbochargers shall include the following:

   - The turbocharger thrust bearings should be visually inspected for excessive wear after 40 non-prelubed starts since the previous visual inspection.

   - Turbocharger rotor axial clearance should be measured at each refueling outage to verify compliance with TDI/Elliott specifications. In addition, thrust bearing measurements should be compared with measurements taken previously to determine a need for further inspection or corrective action.

(1) Momentary transients (not exceeding 5 seconds) due to changing of bus loads need not be considered as an overload.

(2) If there are multiple overload events within a given load range since the previous crankshaft inspection, then the time period criterion applies to the total accumulated time in that load range.

- Spectrographic and ferrographic engine oil analysis shall be performed quarterly to provide early evidence of bearing degradation. Particular attention should be paid to copper level and particulate size, which could signify thrust bearing degradation.

- The nozzle ring components and inlet guide vanes should be visually inspected at each refueling outage for missing parts or parts showing distress on a one-turbocharger-per-refueling-outage basis. In addition, these inspections should be performed for all turbochargers at each turbocharger overhaul (i.e., at approximately 5-year intervals). If any missing parts or distress is noted, the entire ring assembly should be replaced and the subject turbocharger should be reinspected at the next refueling outage.

7. Operation beyond the first refueling outage is subject to NRC staff approval based on the staff's final review of the Owners Group generic findings and of the overall design review and quality revalidation program at River Bend.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

José A. Calvo

Jose A. Calvo, Director
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Date of Issuance: November 2, 1987

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 15 TO FACILITY OPERATING LICENSE NO. NPF-47

GULF STATES UTILITIES COMPANY

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

License condition 2.C(8) requires that Gulf States Utilities (GSU) implement the TDI diesel engine requirements as specified in Attachment 3 to the River Bend Station (RBS), Unit 1 license. As discussed in Supplement 3 to the staff's safety evaluation report related to the operation of RBS (NUREG-0989), Attachment 3, item 7, was imposed to assure that the RBS diesel generators would continue to meet General Design Criterion (GDC) 17 of Appendix A to 10 CFR Part 50 beyond the first refueling outage.

Specifically, item 7 of Attachment 3 requires "operation beyond the first refueling outage is subject to NRC staff approval based on the staff's final review of the Owners Group generic findings and of the overall design review and quality revalidation program at River Bend Station."

In July 1986, the staff sent GSU a generic safety evaluation report (SER) related to the operability/reliability of emergency diesel generators (EDGs) manufactured by Transamerica Delaval, Inc. Subsequently, the staff published the SER as NUREG-1216. This SER documents the staff's evaluation of the TDI Diesel Generator Owners Group program to address TDI EDG issues. The staff concluded that implementation of the Owners Group recommendations plus additional actions identified in the SER will establish the adequacy of the TDI diesel generators for nuclear standby service as required by GDC 17. In this SER, the staff concluded that the technical resolution of the concerns regarding the performance of TDI EDGs involves the following major elements:

(1) Phase I: Resolution of 16 known generic problem areas as discussed in Section 2.1 of the generic SER;

(2) Phase II: A design review/quality validation (DR/QR) of a large set of important engine components to assure that their design and manufacture are adequate as discussed in Section 2.2 of the generic SER; and

(3) Implementation of an acceptable maintenance/surveillance program as discussed in Section 2.3 of the generic SER.

2.0 EVALUATION

By letters dated August 4, August 15, September 26, 1986, and September 8, 1987, GSU outlined its plans for implementation of the program identified in the staff's generic SER for resolving the TDI reliability issue. Specifically, GSU plans to implement Phase I and Phase II as discussed in the generic SER and the maintenance and surveillance recommendations developed by the Owners Group in Appendix II, Revision 2 of the DR/QR report for RBS. This approach is consistent with elements that constitute an acceptable maintenance/surveillance program as outlined in the staff's generic SER.

By letter dated October 8, 1987, the licensee provided the status of the RBS program. The licensee indicated that all open issues in Supplement 3 to the staff's SER have been implemented.

The staff has required that any future revisions to the maintenance/surveillance program would be subject to the provisions of 10 CFR 50.59 in view of the importance of this program in ensuring the operability/reliability of the engines over the long term. Furthermore, as described in the staff's generic SER, there are certain components that warrant special emphasis in terms of maintenance/surveillance actions to assure their adequate service. The staff requested GSU to submit these maintenance/surveillance actions in the form of proposed license conditions as specified by the generic SER. The staff in its letter of April 1, 1987, clarified its position on inspection frequency for crankshafts in the generic SER:

> At approximately 5 year intervals subsequent to the third refueling outage, inspect the fillets and oil holes of the (a) three most heavily loaded crankpin journals (5, 6 and 7) and (b) the main journals located between crankpin journals 5, 6 and 7.

Accordingly, by letter dated September 8, 1987, the licensee has proposed the requisite license conditions. The staff finds the proposed license conditions are acceptable.

Based on the above, the staff concludes that the TDI issue relating to River Bend Station, Unit 1 has been resolved. Accordingly, the licensee's responses also satisfy license condition 2.C(8) Attachment 3, Item 7.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and/or changes to the surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the

types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement nor environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public. The staff therefore concludes that the proposed changes are acceptable, and they are hereby incorporated into the River Bend Unit 1 license.

Principal Contributors: W. Paulson

Dated: November 2, 1987