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

September 29, 1992

Docket No. 50-458

Gulf States Utilities
ATTN: Mr. James C. Deddens
Senior Vice President (RBNG)
Post Office Box 220
St. Francisville, Louisiana 70775

Dear Mr. Deddens:

SUBJECT: RIVER BEND STATION, UNIT 1 - AMENDMENT NO. 64 TO FACILITY OPERATING LICENSE NO. NPF-47 (TAC NO. M80019)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 64 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 May 2, 1989 (RBG-30780).

The amendment revises Technical Specification 3/4.8.1.1, "AC Sources - Operating," to eliminate unnecessary diesel generator testing when a diesel generator or an offsite power supply becomes inoperable. The amendment also reduces unnecessary plant shutdowns when safe continued operation would normally be allowed by the current action statements.

The submittal was originally endorsed by the BWR Owners Group and it was requested that the submittal be treated as the lead plant in the staff's line-item improvement program. However, considering the similarity between the submittal and the current revised standard technical specifications (RSTS), the staff has elected to treat this submittal as plant specific. The items being granted in this license amendment will soon be available to all of industry coincident with the issuance of the RSTS. With regard to the use of the word "redundant" in Specification 3.8.1.1 Action e, the staff notes that in the RSTS the staff's interpretation of "redundant" includes the HPCS and other essential systems/components that do not have an identical counterpart, but where other types of redundant systems/components are provided instead to accomplish the same safety function. We understand that River Bend is working with the other BWR6s in developing a joint application to adopt the RSTS.

100024
9210060424 920929
PDR ADOCK 05000458
P PDR

DF01 1/1

NRC FILE CENTER COPY

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

Sincerely,

Original Signed By

Douglas V. Pickett, Project Manager
Project Directorate IV-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 64 to NPF-47
2. Safety Evaluation

cc w/enclosures:
See next page

OFFICE	PDIV-2/LA	PDIV-2/PM	OGC	SELB	PDIV-2/D
NAME	EPeyton	DPickett:nb		CBerlinger	SBlack
DATE	9/15/92	9/15/92	9/25/92	9/16/92	9/29/92

Document Name: M90019.DP
c:\wp\rb

cc w/enclosures:
Winston & Strawn
ATTN: Mark J. Wetterhahn, Esq.
1400 L Street, N.W.
Washington, D.C. 20005-3502

Mr. Les England
Director - Nuclear Licensing
Gulf States Utilities Company
St. Francisville, Louisiana 70775

Mr. Philip G. Harris
Cajun Electric Power Coop, Inc.
10719 Airline Highway
P. O. Box 15540
Baton Rouge, Louisiana 70895

Senior Resident Inspector
P. O. Box 1051
St. Francisville, Louisiana 70775

President of West Feliciana
Police Jury
P. O. Box 1921
St. Francisville, Louisiana 70775

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Mr. J. E. Booker
Manager-Nuclear Industry Relations
Gulf States Utilities
P. O. Box 2951
Beaumont, Texas 77704

Mr. J. David McNeill, III
William G. Davis, Esq.
Department of Justice
Attorney General's Office
P. O. Box 94095
Baton Rouge, Louisiana 70804-9095

Ms. H. Anne Plettinger
3456 Villa Rose Drive
Baton Rouge, Louisiana 70806

Administrator
Louisiana Radiation Protection Division
P. O. Box 82135
Baton Rouge, Louisiana 70884-2135

DISTRIBUTION:
Docket File
NRC PDR
Local PDR
PDIV-2 RF
PDIV-2 PF
BBoger
MVirgilio
EPeyton
DPickett (2)
RHall
PO'Connor
TGody,Jr.
DHagan
GHill (4)
Wanda Jones
CGrimes
ACRS (10)
PA
ARM/LFMB
CBerlinger, SELB
PHarrell, Region IV

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. 64
License No. NPF-47

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

   A. The application for amendment by Gulf States Utilities Company (the licensee) dated May 2, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and 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 license 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.

9210060426 920929
PDR ADOCK 05000458
P PDR

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 2.C.(2) of Facility Operating License No. NPF-47 is hereby amended to read as follows:

   (2) Technical Specifications and Environmental Protection Plan

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 64 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. GSU shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Suzanne C. Black, Director
Project Directorate IV-2
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 29, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 64

FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by Amendment number and contain vertical lines indicating the areas of change. The overleaf pages are provided to maintain document completeness.

REMOVE	INSERT
3/4 8-1	3/4 8-1
3/4 8-2	3/4 8-2
3/4 8-3	3/4 8-3
B 3/4 8-1	B 3/4 8-1
B 3/4 8-2	B 3/4 8-2
B 3/4 8-3	B 3/4 8-3
---	B 3/4 8-4

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

A.C. SOURCES - OPERATING

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system, and

b. Three separate and independent diesel generators, each with:

   1. A separate day fuel tank containing a minimum of 316.3 gallons of fuel,

   2. A separate fuel storage system containing a minimum of 45,495 gallons of fuel, and

   3. A separate fuel transfer pump.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2, AND 3.

ACTION:

a. With one offsite circuit of the above-required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore the offsite circuit to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

b. With either diesel generator 1A or 1B inoperable, demonstrate the OPERABILITY of the above required AC offsite sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable due to any cause other than preplanned maintenance or testing, within 24 hours*, for each OPERABLE diesel generator separately, either verify that the cause of the diesel generator being inoperable does not impact the OPERABILITY of the OPERABLE diesel generator or perform Surveillance Requirement 4.8.1.1.2.a.4. Restore the inoperable diesel generator to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*This is required to be completed regardless of when the inoperable diesel generator is restored to OPERABLE.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

c. With one offsite circuit of the above-required AC sources and diesel generator 1A or 1B of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If a diesel generator became inoperable due to any cause other than preplanned maintenance or testing, within 8 hours*, for each OPERABLE diesel generator separately, either verify that the cause of the diesel generator being inoperable does not impact the OPERABILITY of the OPERABLE diesel generator or perform Surveillance Requirement 4.8.1.1.2.a.4. Restore at least one of the inoperable AC sources to OPERABLE status within 12 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore at least two offsite circuits and diesel generators 1A and 1B to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

d. With diesel generator 1C of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the offsite AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. If the diesel generator became inoperable as a result of any cause other than preplanned maintenance or testing, within 24 hours*, for each OPERABLE diesel generator separately, either verify that the cause of the diesel generator being inoperable does not impact the OPERABILITY of the OPERABLE diesel generator or perform Surveillance Requirement 4.8.1.1.2.a.4. Restore diesel generator 1C to OPERABLE status within 72 hours or declare the HPCS system and the C SSW pump inoperable and take the ACTION required by Specifications 3.5.1 and 3.7.1.1.

e. With diesel generator 1A or 1B of the above required AC electrical power sources inoperable, in addition to taking ACTION b or c, as applicable, verify within 2 hours that all required redundant systems, subsystems, trains, components and devices that depend on the remaining OPERABLE diesel generator as a source of emergency power are also OPERABLE, and that the C standby service water pump is OPERABLE if diesel generator 1B is inoperable; otherwise, either declare inoperable the redundant systems, subsystems, trains, components and devices served by the inoperable diesel generator and take the ACTION required by the associated Specification(s) for both divisional components inoperable or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

*This is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

f. With both of the above required offsite circuits inoperable, restore at least one of the above-required offsite circuits to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours. With only one offsite circuit restored to OPERABLE status, restore at least two offsite circuits to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

g. With diesel generators 1A and 1B of the above required AC electrical power sources inoperable, demonstrate the OPERABILITY of the remaining AC sources by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter and within 8 hours* either verify that the cause(s) of diesel generators 1A and 1B being inoperable do not impact the OPERABILITY of diesel generator 1C or perform Surveillance Requirement 4.8.1.1.2.a.4 for diesel generator 1C. Restore at least one of the inoperable diesel generators 1A and 1B to OPERABLE status within 2 hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours. Restore both diesel generators 1A and 1B to OPERABLE status within 72 hours from time of initial loss or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

h. With one offsite circuit of the above-required AC electrical power sources inoperable and diesel generator 1C inoperable, apply the requirements of ACTION statements a and d specified above.

i. With either diesel generator 1A or 1B inoperable and diesel generator 1C inoperable, apply the requirements of ACTION statements b, d and e specified above.

*This is required to be completed regardless of when the inoperable diesel generator is restored to OPERABILITY.

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. At least once per 7 days, determined OPERABLE by verifying correct breaker alignments and indicated power availability, and

b. At least once per 18 months, demonstrated OPERABLE, during shutdown, by manually transferring unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each of the above required diesel generators shall be demonstrated OPERABLE:

a. In accordance with the frequency specified in Table 4.8.1.1.2-1 on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the day fuel tank.

2. Verifying the fuel level in the fuel storage tank.

3. Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day fuel tank.

4. a) For diesel generators 1A and 1B, verifying the diesel starts** from ambient condition and accelerates to at least 450 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal.

b) For diesel generator 1C, verifying the diesel starts** from ambient condition and accelerates to at least 882 rpm in less than or equal to 10 seconds. The generator voltage and frequency shall not exceed a maximum of 5400 volts and 66.75 Hz and shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 13 seconds.

5. Verifying the diesel generator is synchronized, loaded to 3000-3100 kw*** for diesel generators 1A and 1B and 2500-2600 kw*** for diesel generator 1C in less than or equal to 60 seconds**, and operates with this load for at least 60 minutes.

**All diesel generator starts for the purpose of this surveillance test may be preceded by an engine prelube period. Further, all surveillance tests, with the exception of once per 184 days, may also be preceded by warmup procedures and may also include gradual loading (>150 sec) as recommended by the manufacturer so that the mechanical stress and wear on the diesel engine is minimized.

***Momentary transients due to changing bus loads shall not invalidate the test.

3/4.8.1, 3/4.8.2 and 3/4.8.3 A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for the safe shutdown of the facility and the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criterion 17 of Appendix "A" to 10 CFR Part 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources is consistent with the initial condition assumptions of the safety analyses and is based upon maintaining OPERABLE at least Division I or II of the onsite A.C. and D.C. power sources and associated distribution systems during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. or D.C. source. Division III supplies the high pressure core spray (HPCS) system and standby service water pump 1SWP*P2C with its auxiliaries.

The A.C. and D.C. source allowable out-of-service times are based on Regulatory Guide 1.93, "Availability of Electrical Power Sources," December 1974, as modified by plant-specific analysis and diesel generator manufacturer's recommendations. When diesel generator 1A or 1B is inoperable, there is an additional ACTION requirement to verify that all required systems, subsystems, trains, components and devices, that depend on the remaining OPERABLE diesel generator 1A or 1B as a source of emergency power, are also OPERABLE. This requirement is intended to provide assurance that a loss of offsite power, during the period that diesel generator 1A or 1B is inoperable, will not result in a complete loss of safety function of critical systems. Critical systems are those systems that require emergency power to safely shut down the plant and maintain it in a safe shutdown condition in conjunction with a loss of offsite power. Equipment which "fails safe" upon a loss of power are not included. The following systems/subsystems are required to be verified OPERABLE per this ACTION requirement:

1. one channel of the accident monitoring drywell and containment hydrogen concentration analyzer and monitor
2. two leak detection subsystems per Technical Specification 3.4.3.1
3. two low pressure ECCS subsystems
4. one main steam positive leakage control subsystem
5. one penetration valve leakage control subsystem
6. one safety-related primary containment unit cooler
7. one suppression pool cooling subsystem of RHR
8. one standby gas treatment system
9. one shield building annulus mixing subsystem
10. one fuel building ventilation charcoal filtration subsystem
11. one primary containment hydrogen recombiner

A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

12. one primary containment/drywell hydrogen mixing subsystem
13. one primary containment/drywell hydrogen ignitor subsystem
14. one standby service water subsystem with both pumps operable
15. the standby cooling tower with two fan cells operable
16. one main control room air conditioning subsystem

The above systems/subsystems are required to be capable of being powered by the OPERABLE diesel generator 1A or 1B. Systems whose ACTION requirements are 72 hours or longer for a complete loss of its safety function are not included on the above list. Continued plant operation is limited to 72 hours with diesel generator 1A or 1B inoperable. The term verify, as used in this context, means to administratively check, by examining logs or other information, to determine if certain components are out of service for maintenance or other reasons. It does not mean to perform the surveillance requirements needed to demonstrate the OPERABILITY of the component. When a diesel generator becomes inoperable due to any cause other than preplanned maintenance or testing, there is a requirement in the ACTION to, for each OPERABLE diesel generator separately, either verify that the cause of the diesel generator being inoperable does not impact the OPERABILITY of the OPERABLE diesel generator or perform Surveillance Requirement 4.8.1.1.2.a.4. The term verify in this context means to determine by visual inspection, functional test or other means that the subsystem will perform its function. For diesel generators made by different manufacturers, this verification may consist of a determination that the cause cannot exist if the comparable subsystem is of a different design.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems, during shutdown and refueling, ensures that the facility can be maintained in the shutdown or refueling condition for extended time periods and sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The surveillance requirements, for demonstrating the OPERABILITY of the diesel generators, are in accordance with the recommendations of Regulatory Guide 1.9, "Selection of Diesel Generator Set Capacity for Standby Power Supplies," March 10, 1971, and Regulatory Guide 1.108, "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants," Revision 1, August 1977, as modified by plant-specific analysis and diesel generator manufacturer's recommendations.

Generic Letter 84-15 prescribed increasing the surveillance test frequency where previous testing indicated a reliability of less than or equal to 0.95/demand until restored reliability was demonstrated. It also considered a prescriptive testing program which included seven consecutive successful demands without a failure of the DG.

A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

The test frequency of Table 4.8.1.1.2-1 is based on the criteria goals of an overall reliability of > 95% and to attain ≥ 90% prior to returning to monthly testing. There is a requirement to return to weekly testing if the number of failures is greater than or equal to 2 in 20 or 5 in 100. The note to the table (footnote "**") explains that whenever failures in excess of one in 20 or five in 100 last valid tests an accelerated test frequency must be maintained. This weekly (accelerated) test schedule is continued until two conditions have been satisfied. First, seven consecutive successful tests have been accumulated, and second, the failures in the most recent 20 tests have been reduced to one or less. Seven successful tests indicate a reliability of at least 0.90/demand. Continuing the accelerated testing until the number of failures is one or less out of 20 adds further assurance that the DG reliability has not degraded below the 0.90/demand level. After each failure the criteria will be reviewed for reentry into once per weekly testing.

The surveillance requirements for demonstrating the OPERABILITY of the unit batteries are in accordance with the recommendations of Regulatory Guide 1.129 "Maintenance Testing and Replacement of Large lead Storage Batteries for Nuclear Power Plants", February 1978, and IEEE Std 450-1975, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations."

Verifying average electrolyte temperature above the minimum for which the battery was sized, total battery terminal voltage on float charge, and connection resistance values, and performing battery service and discharge tests, ensures the effectiveness of the charging system and the ability to handle high discharge rates, and compares the battery capacity at that time with the rated capacity.

Table 4.8.2.1-1 specifies the normal limits for each designated pilot cell and each connected cell for electrolyte level, float voltage and specific gravity. The limits for the designated pilot cells float voltage and specific gravity, greater than 2.13 volts and .015 below the manufacturer's nominal full charge specific gravity, or a battery charger current that had stabilized at a low value, is characteristic of a charged cell with adequate capacity. The normal limits for each connected cell for float voltage and specific gravity, greater than 2.13 volts and not more than .020 below the manufacturer's full charge specific gravity with an average specific gravity of all the connected cells not more than .010 below the manufacturer's full charge specific gravity, ensures the OPERABILITY and capability of the battery.

Operation with a battery cell's parameter outside the normal limit but within the allowable value specified in Table 4.8.2.1-1 is permitted for up to 7 days. During this 7 day period: (1) the allowable values for electrolyte level ensures no physical damage to the plates so that they retain an adequate electron transfer capability; (2) the allowable value for the average specific

A.C. SOURCES, D.C. SOURCES and ONSITE POWER DISTRIBUTION SYSTEMS (Continued)

gravity of all the cells, not more than .020 below the manufacturer's recommended full charge specific gravity, ensures that the decrease in rating will be less than the safety margin provided in sizing; (3) the allowable value for an individual cell's specific gravity ensures that an individual cell's specific gravity will not be more than .040 below the manufacturer's full charge specific gravity and that the overall capability of the battery will be maintained within an acceptable limit; and (4) the allowable value for an individual cell's float voltage, greater than 2.07 volts, ensures the battery's capability to perform its design function.

3/4.8.4 ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

Containment electrical penetrations, penetration conductors, main control room lighting, and RPS alternate source of power are protected by either de-energizing circuits not required during reactor operation or demonstrating the OPERABILITY of the overcurrent protection circuit breakers and/or motor starters by periodic surveillance.

The surveillance requirements applicable to lower voltage circuit breakers and/or motor starters provide assurance of breaker and starter reliability by testing at least one representative sample of each manufacturer's brand of circuit breaker and/or starter. Each manufacturer's molded case and metal case circuit breakers and/or more starters are grouped into representative samples which are tested on a rotating basis to ensure that all breakers and/or starters are tested. If a wide variety exists within any manufacturer's brand of circuit breakers and/or motor starters, it is necessary to divide that manufacturer's breakers and/or starters into groups and treat each group as a separate type of breaker or starter for surveillance purposes.

Specific surveillance tests on the bypass circuits of motor-operated valves' thermal overload protection is not required at River Bend because the circuits are integral with the starting circuits of the motor operated valves and are therefore tested during functional tests of the valves. For the motor operated valve thermal overloads not bypassed, the thermal overloads are tested under Specification 4.8.4.1.a.3. These surveillance requirements are in accordance with RG 1.106, "Thermal Overload Protection for Electric Motors on Motor Operated Valves," Revision 1, March 1977.

The reactor protection system (RPS) electric power monitoring assemblies provide redundant protection to the RPS, and to other systems that receive power from the RPS buses, by acting to disconnect the RPS from the power source circuits in the presence of an electrical fault in the power supply.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 64 TO FACILITY OPERATING LICENSE NO. NPF-47

GULF STATES UTILITIES COMPANY

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

The reliability of diesel generators (DGs) to start and load safety-related equipment following an accident has been a long-term concern to the staff. The reliability of DGs during normal plant operation is demonstrated by surveillance testing required by the plant's technical specifications. The frequency of such testing is based on past performance with increased testing required to demonstrate continued reliability when test failures occur. In addition to these normal surveillance tests, technical specifications also require testing DGs whenever an offsite power source is lost or if a DG is declared inoperable for a reason other than preplanned preventive maintenance. The purpose of the latter testing is to verify that there is no common mode problem that could affect the remaining DGs and to provide additional assurance that the DGs are, in fact, operable during those conditions when they might be called upon.

While the additional testing described above provides assurance that the DGs are operable, the demands of testing causes additional wear on the diesel components. Operational experience has shown that technical specifications have required DGs to be tested when there was clearly no reason to believe that common mode failure was a possibility. Such testing that does not contribute to improved DG reliability is considered excessive. Excessive testing is detrimental to the mechanical components in that it could contribute to an overall reduction in the reliability of the diesel to start and perform its intended function.

Past efforts have been taken to reduce or eliminate unnecessary DG testing. In July 1984, the staff issued Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," in order to improve and maintain DG reliability. One of the principal objectives of this generic letter was to reduce the number of DG "fast starts" which the staff had determined results in premature diesel engine degradation. Other DG start tests were also targeted for reduction on the basis that excessive testing results in degradation of diesel engines. The recommendations of Generic Letter 84-15 regarding testing of the DGs have previously been incorporated into the River Bend Technical Specifications. By letter dated May 2, 1989, Gulf States Utilities Company (GSU), requested an amendment to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The proposed amendment included revisions to the action statements for Specification

9210060428 920929
PDR ADOCK 05000458
P PDR

3/4.8.1, "AC SOURCES - OPERATING." The net result of these proposed changes would be a reduction in the amount of DG testing and the elimination of unnecessary plant shutdowns. Specifically, the proposed changes are as follows:

1) Current technical specifications require that if a DG is inoperable due to any cause other than preplanned preventive maintenance, the remaining DG must be started and loaded to demonstrate operability. In lieu of starting and loading the remaining DG, GSU has proposed adding a provision to allow verification that the cause of the DG being inoperable does not impact the operability of the remaining DG. Thus, the licensee will be demonstrating that the potential for a common mode failure does not exist.

2) As discussed above, declaring a DG inoperable due to "preplanned preventive maintenance" does not require an operability test of the remaining DG. GSU has proposed deleting the word "preventive" in order to permit corrective maintenance on a DG without needing to demonstrate operability on the remaining DG.

3) Current technical specifications require starting and loading the DGs if one or both of the required offsite power supplies become inoperable. GSU has proposed deleting this requirement.

4) Current technical specifications require that if a DG becomes inoperable, all equipment that is powered by the remaining DG must be verified as operable within two hours or plant shutdown must commence. GSU has identified conditions where the individual equipment technical specification is not as conservative and may allow continued plant operation with both trains of equipment inoperable. Therefore, the licensee has proposed an option of declaring both trains of equipment inoperable and following the associated action statement of the individual component.

2.0 EVALUATION

Item 1 - Demonstrating the Absence of Common Mode Failures
- Specification 3.8.1.1, Actions b, c, d and g

The current River Bend Station Technical Specifications require all operable DGs to be started and loaded to offsite power to demonstrate their operability in the event a DG becomes inoperable due to any cause other than preplanned preventive maintenance or testing. The intent of this additional testing is, in part, to determine if a common mode failure exists and, in part, to provide added assurance that the remaining operable DGs are capable of supplying emergency power.

GSU has proposed a change to allow for verification that the cause of the DG being inoperable does not impact the operability of the remaining DGs. This would determine the potential for common mode failure without causing unnecessary testing of the operable DGs.

The normal technical specification surveillance testing schedule demonstrates acceptable reliability and assures that the DGs are capable of performing their intended safety function. The staff agrees that, once the potential for common mode failure has been examined and dismissed, testing beyond the normal surveillance schedule described above is excessive and does not contribute to improved DG reliability. Therefore, since the proposed change will allow for verification that the cause of the DG being inoperable does not impact the operability of the remaining DGs and will result in the elimination of unnecessary testing, the staff finds this proposed change acceptable.

For those situations when a DG is declared inoperable and a common mode failure cannot be ruled out, GSU has proposed that the remaining DGs be started but not loaded. This is a change to the current River Bend Station technical specifications which require running the DGs fully loaded for a period of not less than 60 minutes. While the successful start of a DG does not ensure successful loading, IE Information Notice 84-69 and Supplement 1, "Operation of Emergency Diesel Generators," alerted licensees that when a DG is operated connected to offsite or nonvital loads, the emergency power is not independent of disturbances on the nonvital and offsite power systems that can adversely affect emergency power availability. At a time when at least one DG is inoperable, the action statements increase the potential for a station blackout condition. In a letter to GSU dated January 14, 1988, the staff recommended that the loading requirements of Specification 3.8.1.1, Actions b, c, d and g be eliminated. Therefore, based on the staff's Information Notice and previous recommendation, this change is found acceptable.

The staff notes that in GSU's letter of May 2, 1989, they indicated that although the revised action statements will eliminate the requirement for DG loading in the technical specifications, GSU will continue to maintain a requirement to load the DGs, whenever they are started, for a period of time (less than 60 minutes) adequate to preclude buildup of carbon deposits. The rationale that they provide for voluntarily maintaining this requirement outside technical specifications is that they believe it is undesirable to start and not load the DGs as this can cause the formation of carbon deposits in the cylinders. This is also in agreement with the DG manufacturer's recommendations. The staff finds these provisions acceptable because, by not having a technical specification action statement to always load the DGs, an operator will have more flexibility to determine whether or not to load the DGs based on existing conditions and ultimate plant safety. For example, if the remaining onsite power sources are available and there are no conditions expected that would cause perturbations or jeopardize the availability of the offsite sources, the operator may choose to load the DG that is required to be started in order to preclude the buildup of carbon deposits and maintain a high level of DG reliability. On the other hand, if the remaining onsite power sources are not available and there are conditions that might cause grid perturbations or jeopardize the availability of the offsite sources, the

operator could choose not to load a DG that is required to be started but rather choose to load it at a later time to burn off carbon deposits when the onsite power source availability and grid situation improves.

Item 2 - Deletion of "preventive" from "preplanned preventive maintenance"
- Specification 3.8.1.1., Actions b, c and d

The current technical specifications require all operable DGs to be started and loaded to offsite power to demonstrate their operability in the event any DG becomes inoperable due to any cause other than preplanned preventive maintenance. The intent of this exclusion is to require additional testing only in those cases where a potential for a common mode failure exists or the reliability of the onsite AC sources is reduced.

GSU has proposed deleting the word "preventive" from the phrase "preplanned preventive maintenance." GSU has taken the position that the specification, as currently worded, requires testing of the remaining DGs whenever "corrective" maintenance is being performed. Corrective maintenance is considered to be work that can be delayed without the DG being declared inoperable and that the condition requiring corrective maintenance has not prevented the DG from performing its intended function.

The staff notes that the revised wording of Actions b, c and d, as discussed in item 1 above, requires that verification be made that the cause of a DG being inoperable does not impact the operability of the remaining DGs. This eliminates the staff's concerns of corrective maintenance masking any potential common mode failures. In addition, the staff notes GSU's commitment which states that, if during the performance of preplanned maintenance it is discovered that the DG is in fact inoperable and requires corrective maintenance to restore it to operable status, the operability of the remaining DGs would then be required to be demonstrated. With these assurances, the staff finds the proposed change acceptable.

Item 3 - Deletion of DG testing following an inoperable offsite AC source
- Specification 3.8.1.1, Actions a and f

The current technical specifications require operable DGs to be started and loaded to offsite power to demonstrate their operability in the event that one or both offsite AC sources become inoperable. The intent of this additional testing is to provide added assurance that the operable DGs are capable of supplying emergency power when the offsite AC sources are abnormally degraded.

At the River Bend Station, loss of an offsite AC power source will automatically start the associated DG. As previously discussed, IE Information Notice 84-69 alerted licensees against loading a DG to a potentially unstable offsite grid. To require the remaining DGs to be started and loaded to offsite power increases the risk of losing all AC power to their safety buses causing station blackout. Therefore, DG availability is potentially lessened by a demonstration requiring connection of the DGs to offsite sources when the offsite sources are abnormally degraded.

GSU has proposed to delete the requirement to start and load DGs when an offsite AC source becomes inoperable. As previously discussed, the staff considers the normal technical specification surveillance testing sufficient to demonstrate acceptable reliability and assurance that the DGs are capable of performing their intended function. Therefore, this testing is considered excessive and should be eliminated. The staff agrees that loss of an offsite AC power supply does not imply any loss of DG reliability or common mode failure. Based on the above, the staff finds the licensee's proposal to eliminate this testing acceptable. See item 1 for the staff's evaluation of GSU's voluntary requirement to load the DGs whenever they are started.

Item 4 - Verification of operability of required equipment
- Specification 3.8.1.1, Action e

The current technical specifications require that, within two hours of the Division I or II DG becoming inoperable, all required systems, subsystems, trains, components and devices that depend on the remaining DG as a source of emergency power be verified operable. If this condition cannot be met, actions must be taken to begin plant shutdown. The intent of this item is to provide assurance that a loss of offsite power, concurrent with the loss of a DG, will not result in a complete loss of safety function of essential systems.

GSU has identified a number of non-safety related and non-redundant systems/components that are powered by emergency DGs but do not represent essential safety functions. Additionally, there are systems/components that are supplied emergency power by the DGs that do not have technical specification operability requirements and are not necessary for safe shutdown of the facility. However, at the River Bend Station, if such a system/component was inoperable concurrent with the opposite train DG, a plant shutdown would be required.

The relative significance of the inoperability of the systems/components can be judged from the associated action statement when both trains of equipment are inoperable. GSU has identified action statements that permit continued plant operation with both trains of equipment inoperable. An example being the fuel building radiation monitors. If both monitors are inoperable, the action statement for the individual specification allows for continued plant operation contingent on grab samples being taken. However, under these same conditions, Action e of Specification 3.8.1.1 would require an unnecessary plant shutdown.

GSU has proposed that Action e be modified such that the option is available to declare inoperable the redundant systems/components served by the inoperable DG and take the action required by the associated specification. This will only apply when the action statement permits continued plant operation for greater than 2 hours but not more than 72 hours as this is the maximum time permitted to operate with an inoperable DG. GSU is also adding the word "redundant" to those systems/components served by a DG to avoid those situations when a non-essential system/component is powered by a DG.

The staff notes that the proposed revisions to Action e will provide the same degree of safety for those significant critical systems while allowing the operational flexibility intended for less critical emergency powered systems/components. The staff also agrees that the current action requirements for the affected equipment should determine if an immediate plant shutdown should be initiated since they have been established to support safe operation based upon the effect of the loss of the equipment's safety function. In addition, if the action requirement for both redundant systems/components inoperable is less than 72 hours, the licensee has committed to follow the requirements of Action e or the action requirements for both redundant systems/components. The staff finds the proposed actions to be consistent with the intended level of safety as described in the technical specifications for the affected equipment and, therefore, acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Louisiana State official was notified of the proposed issuance of the amendment. The state official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR 20 and changes surveillance requirements. The NRC 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (57 FR 37568). Accordingly, the 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 or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Douglas V. Pickett, PDIV-2, NRR

Date: September 29, 1992