
Safety Evaluation Report

related to the operation of
River Bend Station

Docket No. 50-458

Gulf States Utilities Company
Cajun Electric Power Cooperative

**U.S. Nuclear Regulatory
Commission**

Office of Nuclear Reactor Regulation

November 1985



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ABSTRACT

Supplement No. 5 to the Safety Evaluation Report on the application filed by Gulf States Utilities Company as licensee and for itself and Cajun Electric Power Cooperative, as owners, for a license to operate River Bend Station has been prepared by the Office of Nuclear Reactor Regulation of the U.S. Nuclear Regulatory Commission. The facility is located in West Feliciana Parish, near St. Francisville, Louisiana. This supplement reports the status of certain items that had not been resolved at the time the Safety Evaluation Report and its first four supplements were published.

TABLE OF CONTENTS

	<u>Page</u>
ABSTRACT	iii
1 INTRODUCTION AND GENERAL DESCRIPTION	1-1
1.1 Introduction	1-1
1.5 Outstanding Issues	1-2
1.6 Confirmatory Items	1-2
1.7 License Conditions	1-2
3 DESIGN CRITERIA FOR STRUCTURES, SYSTEMS, AND COMPONENTS	3-1
3.5 Missile Protection	3-1
3.5.1 Turbine Missile	3-1
3.10 Seismic and Dynamic Qualification of Seismic Category I Mechanical and Electrical Equipment	3-1
3.10.1 Seismic and Dynamic Qualification	3-1
3.11 Environmental Qualification of Electrical Equipment Important to Safety and Safety-Related Mechanical Equipment	3-3
3.11.4 Qualification of Equipment	3-3
6 ENGINEERED SAFETY FEATURES	6-1
6.2 Containment Systems	6-1
6.2.5 Combustible Gas Control in Containment	6-1
8 ELECTRIC POWER SYSTEMS	8-1
8.3 Onsite Emergency Power Systems	8-1
8.3.1 AC Power System	8-1
9 AUXILIARY SYSTEMS	9-1
9.2 Water Systems	9-1
9.2.1 Service Water System	9-1

TABLE OF CONTENTS (Continued)

	<u>Page</u>
13 CONDUCT OF OPERATIONS	13-1
13.1 Organizational Structure	13-1
13.1.2 Corporate Organization	13-1
13.1.4 Station Organization	13-1
13.2 Training	13-1
13.2.1 Licensed Operator Training Program	13-1
13.3 Emergency Preparedness	13-2
13.3.2 Emergency Plan Evaluation	13-2
13.5 Station Administrative Procedures	13-2
13.5.2 Operating, Maintenance, and Other Procedures	13-2
16 TECHNICAL SPECIFICATIONS	16-1
18 HUMAN FACTORS ENGINEERING	18-1
18.1 Control Room	18-1
18.1.2 Evaluation of DCRDR Program Plan Report	18-1
19 REPORT OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS	19-1

APPENDICES

A CONTINUATION OF CHRONOLOGY OF NRC STAFF RADIOLOGICAL REVIEW OF RIVER BEND STATION
B BIBLIOGRAPHY
D ACRONYMS AND INITIALISMS
E PRINCIPAL STAFF CONTRIBUTORS
P ACRS REPORT ON FULL-POWER OPERATION OF RIVER BEND STATION, UNIT 1

TABLES

	<u>Page</u>
1.3 Listing of Outstanding Issues (revised from SER)	1-3
1.4 Listing of Confirmatory Items (revised from SER)	1-5
1.5 Listing of License Conditions (revised from SER)	1-9

1 INTRODUCTION AND GENERAL DESCRIPTION

1.1 Introduction

In May 1984, the Nuclear Regulatory Commission (NRC) staff issued its Safety Evaluation Report (SER) (NUREG-0989) on the application filed by Gulf States Utilities Company, acting on behalf of itself and for Cajun Electric Power Cooperative (CEPCO), for a license to operate the River Bend Station, Docket No. 50-458. On August 29, 1985, the staff issued to Gulf States Utilities Company (licensee) a low-power operating license for River Bend Station.

In the SER, the staff identified items that were not yet resolved with the licensee. Supplement No. 1 (SSER 1) was issued in October 1984 to provide the staff evaluation of open items that had been resolved and to report on the status of all open items. Supplement No. 2 (SSER 2) and Supplement No. 3 (SSER 3) were both issued in August 1985 to update the previous evaluation and status. Supplement No. 4 (SSER 4) was issued in September to reflect staff assessment of the applicant's hydrogen control system to handle hydrogen generated from postulated degraded-core accidents. Supplement No. 5 (SSER 5) is being issued to provide more recent information regarding resolution of items and conditions identified in the SER and its supplements, and to close out all remaining outstanding and confirmatory items associated with the full-power license.

Each of the following sections and appendices is numbered the same as the corresponding SER section or appendix that is being updated. Appendix A continues the chronology of principal correspondence between the licensee and staff related to the processing of the River Bend application; copies of all letters are located in the NRC Public Document Room. Appendix B lists the references cited in this report. Appendix D is a list of acronyms and initialisms used herein, and Appendix E is a list of the principal staff members who contributed to this supplement. Appendix P is the report of the Advisory Committee on Reactor Safeguards on full-power operation of River Bend Station, Unit 1.

Copies of this SER supplement are available for inspection at the NRC Public Document Room at 1717 H Street, N.W., Washington, D.C., and at the Government Documents Department, Louisiana State University, Baton Rouge, Louisiana. Copies are also available for purchase from the sources indicated on the inside front cover.

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1.5 Outstanding Issues

In the SER, the staff identified certain outstanding issues that had not been resolved with the licensee. The status of these issues is listed in an updated version of Table 1.3, which follows. The sections of this supplement where these issues are discussed are indicated.

SSER 3 closed all outstanding issues for the low-power license. Outstanding Issue 23 was closed in this supplement until the first refueling outage. Outstanding Issue 4 was closed in SSER 2 for 2 years from the issuance of an operating license, August 29, 1987. All outstanding issues are presently closed.

1.6 Confirmatory Items

In the SER, the staff identified confirmatory items for which additional information was required to confirm preliminary conclusions. Table 1.4 lists the status of these issues and the sections of this supplement in which they are discussed. Confirmatory Item 69 was closed by license condition in SSER 4. In SSER 5, the staff resolved the license condition. Confirmatory Item 72 has received interim approval until the first refueling outage. Confirmatory Item 75 was also closed in this supplement. All confirmatory items are closed at the present time.

1.7 License Conditions

Table 1.5 contains the current status of license conditions for the River Bend Station full-power license. License Conditions 2, 11, and 13 addressing turbine system maintenance program, emergency preparedness, and equipment qualification, respectively, are removed in this supplement. License Condition 10 was modified to delete these aspects of operating staff experience dealing with shift advisors. License Condition 12 was modified to remove provision for qualifying specific items of equipment which had been qualified since issuance of the low-power license. License Condition 17 was modified to recover those conditions addressing emergency procedures for containment venting and the safety parameter display system. Table 1.5 identifies those sections of this supplement which address the changes in the license cited above.

In addition, License Conditions 8 and 9 were modified to state that the licensee shall not use the residual heat removal system in the steam condensing mode (License Condition 8) and shall not operate with partial feedwater heating (License Condition 9) without prior written approval of the staff.

Table 1.3 Listing of outstanding issues (revised from SER)

Issue	Status*	SSER 5 Section(s)
(1) Hydrostatic loading	Closed (SSER 1)	
(2) Moderate-energy line break	Closed (SSER 3)	
(3) High-energy line break	Closed (SSER 3)	
(4) Inservice test program (including RCS pressure boundary valve leakage)	Closed until August 29, 1987 (SSER 2)	
(5) Equipment qualification		
(a) Seismic and dynamic qualification	Closed (SSER 3); see Lic. Cond. 12	
(b) Environmental qualification of equipment	Closed (SSER 3); see Lic. Cond. 13	
(6) Preservice inspection program	Closed (SSER 3)	
(7) Containment loads	Closed (SSER 2)	
(8) ECCS LOCA analysis (II.K.3.31)	Closed (SSER 2)	
(9) Bypassed and inoperable status	Closed (SSER 3); see Lic. Cond. 15	
(10) Emergency diesel generators		
(a) Electrical loads	Closed (SSER 3)	
(b) Qualification of TDI diesel generators	Closed (SSER 3); see Lic. Cond. 16	
(c) Auxiliary support systems	Closed (SSER 2)	
(11) Submergence of electrical equipment	Closed (SSER 2)	
(12) Heavy-load handling system	Closed (SSER 2)	
(13) Safe/alternate shutdown	Closed (SSER 3); see Lic. Cond. 15	
(14) Communications systems	Closed (SSER 2)	
(15) Lighting systems	Closed (SSER 2)	

*License condition references are numbered as listed in Table 1.5.

Table 1.3 (Continued)

Issue	Status*	SSER 5 Section(s)
(16) HPCS diesel generator	Closed (SSER 2)	
(17) Fuel oil storage	Closed (SSER 2)	
(18) Emergency preparedness	Closed (SSER 3); see Lic. Cond. 11	
(19) Separation of electric circuits	Closed (SSER 2)	
(20) Human factors issues		
(a) Safety parameter display system	Closed (SSER 3); see Lic. Cond. 17	
(b) Control room survey	Closed (SSER 3)	
(c) Resolution of HEDs	Closed (SSER 3); see Lic. Cond. 17	
(21) Auxiliary systems		
(a) Standby service water system	Closed (SSER 3)	
(b) Standby liquid control systems	Closed (SSER 3)	
(c) Low-pressure interface leakage	Closed (SSER 3)	
(d) Equipment and floor drains	Closed (SSER 3)	
(e) Control building ventilation	Closed (SSER 3)	
(f) Miscellaneous HVAC systems	Closed (SSER 3)	
(22) Starting voltage for Class 1E motors	Closed (SSER 3)	
(23) Hydrogen control - degraded core accident	Closed until first refueling outage (SSER 5)	6.2.5

*License condition references are numbered as listed in Table 1.5.

Table 1.4 Listing of confirmatory items (revised from SER)

Issue	Status*	SSER 5 Section(s)
(1) West Creek sediment removal	Closed (SSER 2)	
(2) Ultimate heat sink	Closed (SSER 1)	
(3) Slope stability	Closed (SSER 2)	
(4) Pipe failure modes and check valve stress analysis	Closed (SSER 3)	
(5) Annulus pressurization	Closed (SSER 2)	
(6) Minimum wall thickness	Closed (SSER 1)	
(7) Thermal and anchor displacement loads	Closed (SSER 2)	
(8) Fuel rod mechanical fracturing	Closed (SSER 2)	
(9) Fuel assembly structural damage	Closed (SSER 2)	
(10) Postirradiation surveillance	Closed (SSER 1)	
(11) LOCTVS/CONTEMPT-LT 28 computer codes	Closed (SSER 2)	
(12) Reactor vessel cooldown rate	Closed (SSER 2)	
(13) SRV discharge testing	Closed (SSER 3)	
(14) Mark III-related issues	Closed (SSER 2); see Lic. Cond. 9	
(15) Containment repressurization	Closed (SSER 2)	
(16) Inleakage limit	Closed (SSER 1)	
(17) ECCS test return line design	Closed (SSER 1)	
(18) Containment purge valves	Closed (SSER 2)	
(19) Hydrogen control	Closed (SSER 2)**	
(20) PVLCS leakage	Closed (SSER 2)	

See footnotes at end of table.

Table 1.4 (Continued)

Issue	Status*	SSER 5 Section(s)
(21) Electrical and instrumentation and control diagrams	Closed (SSER 3)	
(22) Routing of circuits and sensors	Closed (SSER 2)	
(23) Instrumentation setpoints	Closed (SSER 3)	
(24) RPS power supply protection	Closed (SSER 3)	
(25) RPS and ESF channel separation	Closed (SSER 3)	
(26) Isolation devices	Closed (SSER 3)	
(27) Reactor mode switch	Closed (SSER 2)	
(28) ADS actuation	Closed (SSER 2)	
(29) ESF reset controls	Closed (SSER 3)	
(30) Initiation of ESF support systems	Closed (SSER 3)	
(31) Instrumentation and control power bus loss	Closed (SSER 3)	
(32) RCIC system	Closed (SSER 3)	
(33) Standby liquid control system (SCLC)	Closed (SSER 2)	
(34) Postaccident monitoring instrumentation	Closed (SSER 3); see Lic. Cond. 17	
(35) Temperature effects on level measurements	Closed (SSER 2)	
(36) High/low pressure interlocks	Closed (SSER 3)	
(37) End of cycle recirculation pump trip	Closed (SSER 2)	
(38) NMS and RCIS isolation	Closed (SSER 3)	
(39) Rod pattern control system microprocessors	Closed (SSER 3)	
(40) DRMS	Closed (SSER 3)	

See footnotes at end of table.

Table 1.4 (Continued)

Issue	Status*	SSER 5 Section(s)
(41) High-energy line break control system failures	Closed (SSER 3)	
(42) Multiple control system failures	Closed (SSER 3)	
(43) Emergency Response Information System (ERIS)	Closed (SSER 2)	
(44) LPCS/RHR A pump procedures	Closed (SSER 3)	
(45) EPA/RPS motor generator set interconnection	Closed (SSER 2)	
(46) Second level undervoltage protection relay setpoint	Closed (SSER 3)	
(47) Verification of test results for station electric distribution system voltage	Closed†	
(48) Safety cable identification	Closed (SSER 2)	
(49) Non-Class 1E loads - powered from Class 1E power supplies	Closed (SSER 3)	
(50) Postaccident sampling system	Closed (SSER 2)	
(51) Diesel generators - mechanical issues	Closed (SSER 2)	
(52) TMI Item II.F.1, Attachment 2	Closed (SSER 2)	
(53) Spent fuel transfer canal	Closed (SSER 1)	
(54) TMI Item II.B.2	Closed (SSER 2)	
(55) Backup RPM designate	Closed (SSER 2)	
(56) Personnel résumés	Closed (SSER 2)	
(57) Licensed operator review	Closed (SSER 2)	
(58) Offsite fire department training	Closed (SSER 2)	
(59) Emergency planning	Closed (SSER 3)	

See footnotes at end of table.

Table 1.4 (Continued)

Issue	Status*	SSER 5 Section(s)
(60) TMI Item I.C.1	Closed (SSER3)	
(61) Initial test program revisions	Closed (SSER 3)	
(62) Proper ESF function (II.K.1.5)	Closed (SSER 2)	
(63) Safety system operability status (II.K.1.10)	Closed (SSER 2)	
(64) QA organization	Closed (SSER 1)	
(65) Ultimate heat sink with delayed fan start	Closed (SSER 3); see Lic. Cond. 20	
(66) Participation of human factors specialists in detailed control room design review	Closed (SSER 3); see Lic. Cond. 17	
(67) Task analysis documentation	Closed (SSER 3)	
(68) Control room modifications	Closed (SSER 3); see Lic. Cond. 17	
(69) Containment venting procedures	Closed (SSER 5)	18.1.2.8
(70) Monitoring instruments for HPCS 125-V ac system	Closed (SSER 3)	
(71) Protection for lighting penetration circuits	Closed (SSER 3)	
(72) Process Control Program	Interim approval until first refueling outage (SSER 2)	
(73) Subcompartment pressure analysis	Closed (SSER 2)	
(74) Cable derating	Closed (SSER 2)	
(75) Equipment qualification - audit	Closed (SSER 5)	3.10.1.4

*License condition references are as numbered in Table 1.5.

**Reclassified as Outstanding Issue 23.

†Assigned to Region IV by the license.

Table 1.5 Listing of license conditions (revised from SER)

Issue	Status	SER Section(s)
(1) Oil and gas exploration	Removed (SSER 2)	2.2.2
(2) Turbine system maintenance program	Removed (SSER 5)	3.5.1.3.3
(3) Fuel rod internal pressure	Removed (SSER 1)	4.2.1.1
(4) Inadequate core cooling (TMI Item II.F.2)	Removed (SSER 3)	4.4.7
(5) ESF reset control	Included in Confirm- atory Item 29 (SSER 1)	-
(6) Postaccident capability (TMI Item II.B.3)	Removed (SSER 2)	10.4.6
(7) Solid waste process control program	Removed (SSER 2)	11.4.2
(8) Partial feedwater heating	Unchanged from SER*	15.1
(9) Mark III-related issues	Unchanged from SER*	6.2.1.9
(10) Operating staff experience requirements	Modified (SSER 5)**	13.1.2
(11) Emergency preparedness	Removed (SSER 5)	13.3
(12) Seismic and dynamic qualification of seismic Category I mechanical and electrical equipment	Modified (SSER 5)†	3.10.1.5
(13) Equipment qualification	Removed (SSER 5)	3.11
(14) Inservice inspection program	Unchanged from SSER 3	5.2.4.3, 6.6.3
(15) Bypassed and inoperable status indication	Unchanged from SSER 3	7.5.2.2
(16) TDI diesel engines	Unchanged from SSER 3	8.3.1
(17) Emergency response capabilities	Modified (SSER 5)††	7.5.2.4, 13.5.2.3, 18.1, 18.1.2.8

See footnotes at end of table.

Table 1.5 (Continued)

Issue	Status	SER Section(s)
(18) Salem ATWS - Generic Letter 83-28 requirements	Unchanged from SSER 3	7.2.2.5
(19) Fire protection	Unchanged from SSER 3	9.5.1
(20) Ultimate heat sink	Unchanged from SSER 3	9.2.5

*License Conditions 8 and 9 are now modified to state that operation as described in these license conditions can not be implemented without prior written approval of the staff.

**License Condition 10 was modified to remove those aspects of operating staff experience dealing with shift advisors.

†That portion of License Condition 12 dealing with seismic qualifications of valves 1DFR*A0V144 and 145 is removed from the license.

††Those portions of License Condition 17 dealing with emergency procedures for containment venting and safety parameter display systems are removed from the license (Sections 13.5.2.3 and 18.1.2.8, respectively).

3 DESIGN CRITERIA FOR STRUCTURES, SYSTEMS, AND COMPONENTS

3.5 Missile Protection

3.5.1 Missile Selection and Description

3.5.1.3 Turbine Missile

3.5.1.3.3 Summary and Conclusion

In the River Bend Station SER, the staff concluded that the turbine-missile risk for the River Bend plant design would be in compliance with GDC 4 and, therefore, acceptable if the license was conditioned to require the licensee (1) to submit for staff approval, within 3 years of obtaining an operating license, a turbine system maintenance program and (2) conduct turbine steam valve maintenance in accord with staff recommendations until such a program were approved.

By letter dated October 9, 1985, the licensee committed to:

- (1) submit for staff approval, before November 1, 1987, a turbine system maintenance program based on the manufacturer's calculations of missile generation probabilities and NRC guidelines [see Table 3.1 of the SER (NUREG-0989)], or volumetrically inspect all low-pressure turbine rotors at the second refueling outage and every other (alternate) refueling outage thereafter, until some other maintenance program is approved by the staff
- (2) conduct turbine steam valve maintenance (following initiation of power output) in accordance with NRC recommendations until a turbine system maintenance program is approved

The staff finds that the above commitment of the licensee is an acceptable resolution of the turbine maintenance issue, and that License Condition 2 is no longer needed and is hereby removed.

3.10 Seismic and Dynamic Qualification of Seismic Category I Mechanical and Electrical Equipment

3.10.1 Seismic and Dynamic Qualification

3.10.1.4 Confirmatory Items

- (9) In a letter dated September 6, 1985, the licensee provided the results of the River Bend Station audit on seismic qualification. The audit was performed by an independent consultant on two equipment types each from the nuclear steam system supplier and the balance-of-plant scope of supply. The scope and the criteria of the audit were discussed with the staff on May 10, 1985, and were delineated by the licensee's letter of May 24, 1985. This audit involved both the review of the documentation and a walkdown. The equipment types reviewed were found to be qualified. Several house-keeping items were noted that generated the following instructions and procedures:

- (a) Check for missing or loose screws before returning any equipment items to service following any repair or maintenance.
- (b) Loose materials, such as tamperproof bars over the setpoint adjustments on instrumentation and control panels, should not be placed on top of the cabinets, but should be stored in a manner that prevents any harmful interaction with safety systems.
- (c) A record of the implementation of the instructions to perform the checks on missing screws and proper storage of loose materials should be kept in an auditable manner.

By letter dated November 4, 1985, the licensee agreed to follow the procedures cited above.

In conclusion, the audit conducted by the licensee was responsive to the staff request, and the commitment contained in the licensee's letter of November 6, 1985, satisfies the staff concern in this area. Therefore Confirmatory Item 75 is closed.

3.10.1.5 License Conditions

See Section 3.10.1.6 which follows.

3.10.1.6 Exemptions

In Supplement 3 to the River Bend Station SER, the staff recommended so conditioning the license that before exceeding 5% of rated power, the seismic qualification of the operators of two 3-inch air-operated valves designated as 1DFR*AOV144 and 145 be complete in order to prevent draining of the suppression pool in the event of a failure of suction piping as delineated in the 10 CFR 50.55(e) report identified as DR-193. Furthermore, the staff identified that a temporary exemption from GDC 2 for operation up to 5% of rated power would be required for these valves.

By letter dated October 10, 1985, the licensee indicated that the subject valves were qualified by seismic analysis. The staff noted that the static analysis was justified on the basis of the rigidity of the valve and operator assembly (i.e., the assembly has no natural frequency of vibration less than 33 Hz); however, the operability of the valve actuators needed to be demonstrated by some testing, for example, static bend testing of the valve operators. In a subsequent letter dated October 25, 1985, the licensee has indicated that the operability of the valve/operator assembly has been established by similarity to a representative valve/operator prototype for which operability (static bend) testing has been performed. The staff had a telephone conversation with the licensee and its consultants on October 29, 1985, clarifying that the similarity between the subject valves and the prototype was established by the valve manufacturer, Fisher Controls International, by letter from John Dresser to Moss Lindley dated October 25, 1985.

It is concluded that the seismic analysis for the valves designated as 1DFR*AOV144 and 145 envelopes the River Bend specific requirements and the operability of the subject valves under seismic loading has been established through static bend testing on a representative valve. The staff finds this

acceptable and that portion of License Condition 12 addressing the qualification of these valves to be satisfied; the temporary exemption from GDC 2 for these valves is no longer required. Therefore, that portion of License Condition 12 dealing with seismic qualification of valves 1DFR*A0V144 and 145 is removed from the license.

3.11 Environmental Qualification of Electrical Equipment Important to Safety and Safety-Related Mechanical Equipment

3.11.4 Qualification of Equipment

In Table 3.3 of Supplement 3 to the River Bend Station SER, the staff identified 15 items of electrical equipment important to safety within the scope of 10 CFR 50.49 which were not environmentally qualified. Consequently, the licensee was required to provide justification for interim operation.

By letters dated July 19; August 13, 14, 22, and 26; September 12 and 30; October 10, 18, and 25; and November 4, 1985, the licensee provided information stating that environmental qualification has been completed on all equipment having outstanding justification for interim operation. On the basis of the information provided in the aforementioned letters, License Condition 13 is removed from the River Bend Station license.

6 ENGINEERED SAFETY FEATURES

6.2 Containment Systems

6.2.5 Combustible Gas Control in Containment

NUREG-0737 Item II.B.7--Analysis of Hydrogen Control, and Item II.B.8-- Rulemaking Proceeding on Degraded Core Accidents

In Supplement 4 to the River Bend Station SER, the staff concluded that the licensee meets the requirements of 10 CFR 50.44 to support interim operation at full reactor power until the final hydrogen control analysis has been completed.

On June 26, 1985, the licensee submitted a proposed schedule for meeting the requirements of the final rule on hydrogen control as required by 10 CFR 50.44(c)(3). The proposed schedule is based on the current schedule for completion of all tasks incorporated in the Mark III Containment Hydrogen Control Owners Group (HCOG) Program Plan (Revision 3). The staff is continuing to work with and meet frequently with HCOG toward the completion of this effort.

The Program Plan identifies December 31, 1986, as the scheduled date for completing and submitting to the staff all elements of the final analysis required by the rule. This date is acceptable to the staff for completion of the final analysis. In the event that the final analysis should provide a basis for the staff to conclude that certain equipment enhancements are necessary to ensure survivability of certain essential equipment during the postulated hydrogen burn events, as required by the rule, an additional period of time will be needed to implement such enhancements. Any enhancements determined to be necessary shall be implemented before startup following the first refueling outage as discussed in licensee letters of June 26, August 19, and November 14, 1985.

Therefore, the staff concludes that Outstanding Issue 23 is closed until the first refueling outage.

8 ELECTRIC POWER SYSTEMS

8.3 Onsite Emergency Power Systems

8.3.1 AC Power System

In Supplement 3 to the River Bend Station SER, the staff reviewed and approved the licensee's new loading values on the Division I and II diesel generators that were given in FSAR Amendment 21. The maximum load shown on the diesel generators at the time was 2886 kW. In a letter dated October 24, 1985, the licensee subsequently supplied a revised loading analysis for these diesel generators. In the revised analysis, some load values have been reduced, some additional loads have been added, and the starting times of some loads have been increased or changed from manual actuation to automatic actuation. The new maximum load is 2883 kW. The staff has reviewed the new loading levels and finds them acceptable.

9 AUXILIARY SYSTEMS

9.2 Water Systems

9.2.1 Service Water System

In conformance with the low-power license for River Bend (NPF-40) Attachment I.6.B, the licensee has submitted its Asiatic Clam Control Program (ADM-0053) by letter dated June 21, 1985, and modified that program by a submittal dated September 24, 1985. The program provides general requirements and references eight other procedures that were not provided for staff review.

The general requirements identify the systems to be monitored for Asiatic clam infestation and the frequency of monitoring. Monitoring includes performing trend analysis, visual inspections, and sampling for clam larvae. In the event that the service water system is cross-connected with the fire protection or the reactor plant component cooling water system, the affected systems will be flushed with demineralized water.

Chlorination will be provided in the service water system between April and November, inclusive, to maintain the total residual-free chlorine (TRFC) at the return to the cooling towers between 0.6 and 0.8 ppm. A control room alarm will be initiated at a low level of 0.5 ppm TRFC.

On the basis of the staff's previous review as documented in testimony filed in the Atomic Safety and Licensing Board proceeding for River Bend (References: Testimony of Charles Billups, Clement Counts, and John Ridgely relative to Contention 1--Asiatic Clam) in conjunction with the staff's review of the licensee's Asiatic Clam Control Program, the staff concludes that the chlorination procedures should be effective in preventing the establishment of a clam population within the plant's water system which could adversely affect the performance of safety-related systems. Therefore, the staff concludes that the program is acceptable and the license condition is removed.

13 CONDUCT OF OPERATIONS

13.1 Organizational Structural

13.1.2 Corporate Organization

(2) Shift Advisor Procedure

In Supplement 2 to the River Bend Station SER, the staff approved the use of shift advisors pursuant to Generic Letter 84-16. These shift advisors would provide the requisite hot operating experience on shift which had been lacking at that time in the senior licensed operators at River Bend. However, by September 1, 1985, the licensee had qualified a sufficient number of senior licensed operators with hot operating experience to remove the need for shift advisors at River Bend. Therefore, those aspects of License Condition 10 dealing with shift advisors are removed from the license.

13.1.4 Station Organization

See Section 13.2.1.

13.2 Training

13.2.1 Licensed Operator Training Program

In the River Bend Station SER, the staff agreed on a shift staffing arrangement which allowed a licensed senior reactor operator (SRO) to receive sufficient training to be qualified to fill the shift technical advisor (STA) position. This combined role SRO/STA arrangement was considered satisfactory because of the number of licensed operators (5) on shift and the total number of individuals (12) on shift. Furthermore in Section 13.2.1 of the SER, the staff agreed to the licensee's proposal for training SROs to meet STA requirements. This training program involved specified technical training but did not require a college degree to qualify for combined SRO/STA. Furthermore, the staff stated that the licensee had met the requirements of NUREG-0737, Item I.A.1, for the technical training of individuals who will be STAs.

On September 25, 1985, the Commission approved a Final Policy Statement on Engineering Expertise on Shift (SECY-85-150). One aspect of this policy statement called for the combined SRO/STA to complete the following training and educational requirements:

- (1) Meets the STA criteria of NUREG-0737, Item I.A.1.1, and one of the following educational alternatives:
 - (a) Bachelor's degree in engineering from an accredited institution; or
 - (b) Professional Engineer's (PE) license obtained by successful completion of the PE examination; or

- (c) Bachelor's degree in engineering technology (BET) from an accredited institution, including course work in the physical, mathematical, and/or engineering sciences; or
- (d) Bachelor's degree in a physical science from an accredited institution, including course work in the physical, mathematical, and/or engineering sciences.

By letter dated November 14, 1985, the licensee committed to comply with the Commission Policy Statement on Engineering Expertise on Shift before startup after the first refueling outage. Although the Technical Specifications only require two SROs on shift, the licensee indicated in the November 14, 1985, letter that it "will make a best effort" to continue to utilize three SROs on shift until the first refueling outage.

The staff considers the licensee's commitment to comply with the Commission Policy Statement on Engineering Expertise on Shift before startup after the first refueling outage as sufficient to satisfy Commission guidance on this matter.

13.3 Emergency Preparedness

13.3.2 Emergency Plan Evaluation

13.3.2.17 Federal Emergency Management Agency Finding on Offsite Plans

In Supplement 3 to the River Bend Station SER, the staff stated that License Condition 11 was necessary in the event the licensee did not complete the Federal Emergency Management Agency's (FEMA's) formal approval process called for by 44 CFR 350. On October 8, 1985, FEMA informed the staff that the Louisiana State and local plans for the River Bend Station are adequate to protect the health and safety of the public, offering reasonable assurance that the appropriate protective measures can be taken in the event of a radiological emergency. Therefore, the staff could conclude that License Condition 11 can be removed from the license.

However, in the October 8, 1985, letter, FEMA stated that its approval was conditional upon FEMA verifying the alerting and notification (A&N) system in accordance with the criteria of NUREG-0654/FEMA REP-1, Rev. 1, Appendix 3 and the "Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants" (FEMA-43). Should FEMA find the licensee not in conformance with the A&N system requirement, the provisions of 10 CFR 50.54(s)(2) will apply.

13.5 Station Administrative Procedures

13.5.2 Operating, Maintenance, and Other Procedures

13.5.2.3 Reanalysis of Transients and Accidents; Development of Emergency Operating Procedures

Plant-Specific Technical Guideline: Evaluation of Primary Containment Pressure Limit

In Supplement 3 to the River Bend Station SER, the staff identified as a condition in the low-power license, that the licensee must submit and the staff

review and approve emergency procedures for containment venting before exceeding 5% of rated power. The staff stated its intent to review the proposed emergency venting criterion and identified specific areas to be addressed in the review. The licensee's response to these items was provided by letters dated September 19, October 10, and November 4, 1985.

The primary containment pressure is to be used in the Emergency Operating Procedures to indicate the need for emergency containment venting. The BWR Owners Group Emergency Procedure Guidelines (EPGs) call for containment venting as the last step in a sequence of procedural steps involving operator actions designed to reduce containment pressure. The staff's SER on the BWR EPGs established an interim limit of twice the design pressure for venting, with the understanding that plant-specific analyses may be used to establish a venting pressure limit. These analyses, in general, could consider containment integrity structural tests, purge valve operability, and system requirements for safety relief valve (SRV) actuation. These, and other considerations, were provided in the licensee's response. The emergency venting procedure proposed by the licensee is that the containment vent path would be through a 3-inch hydrogen purge line at a pressure of 20 psig (1.3 times design pressure). This path minimizes offsite dose consequences by utilizing the scrubbing capabilities of the suppression pool and filtering through the standby gas treatment system (SGTS).

The ultimate structural capability was determined by the licensee to be about 53 psig. Sufficient progress on review of this value has been made to allow preliminary approval by the staff. Since the River Bend containment is planned to be vented at a much lower pressure, the proposed venting criterion of 20 psig is acceptable for structural considerations.

The licensee has also considered essential system operability in the selection of the venting pressure, specifically the required pressure relief to maintain the reactor in a depressurized condition at the proposed venting pressure. During discussions with the licensee, it was determined that the air supply pressure requirements for operating the required number of SRVs can be provided by a minimum compressor capability of 105 psig, which is available in the present River Bend design. The staff concludes that the SRVs will be operable if called upon at the proposed venting pressure of 20 psig.

With regard to suppression pool flashing resulting from venting, the staff agrees with the licensee's conclusion that the flow rate through the proposed 3-inch vent path at pressures up to 20 psig would be sufficiently small that flashing and induced structural loads are not a concern for the River Bend Station.

Following containment venting through the hydrogen purge system at 20 psig, a subsequent step in the procedure instructs the operator to close the vent path if the pressure decreases to 5 psig. This procedural step is acceptable since it provides some limitation of offsite releases. The licensee stated in the September 19 letter that the capability of the purge valves to operate under the expected conditions has been evaluated. The particular valve in the hydrogen purge line is qualified to operate under hydrogen burn conditions which would include pressures in excess of 20 psig. By letter dated November 5, 1985, the licensee committed to provide additional documentation by August 1, 1986, of the capability of the 3-inch valves to open and reclose.

The operator action for emergency venting at 20 psig requires the approval of the facility Emergency Director, a designated member of the utility staff. The licensee stated in the September 19 letter that the criteria to be used by the Emergency Director to judge the need for emergency venting will be included in an Emergency Implementing Procedure. The staff finds this commitment acceptable.

By letter dated November 4, 1985, the licensee committed to provide additional information in the following areas by August 1, 1986:

- (1) additional flow paths for emergency venting including justification for vent path valve operability (capability to open and reclose) and the survivability of the 3-inch vent path
- (2) the effects of containment venting on ductwork failure (if used as a pathway), and the resulting consequences of subjecting equipment near the failed duct to the steam/radiation environment
- (3) the technical bases that support the criteria used by the Emergency Director to vent containment (e.g., status of plant including anticipated rate of pressurization, existing meteorology, containment radioactivity, etc.) (Since the identification of an Emergency Director is not in the approved BWR Owners Group EPGs, the staff considers actions based on these parameters as potential deviations from the generic EPGs and, as such, require justification.)

In conclusion, the staff finds that the material furnished in the licensee's letter of September 19, 1985, and the licensee's commitments contained in the letters dated October 10 and November 4, 1985, has addressed the concerns expressed in Supplement 3 to the River Bend Station SER, and that aspect of License Condition 17 dealing with emergency procedures for containment venting can be removed from the license.

16 TECHNICAL SPECIFICATIONS

On August 29, 1985, the staff issued the low-power operating license for River Bend Station. As part of this license, the staff issued River Bend Technical Specifications, NUREG-1142.

By letters dated October 21 and November 5 and 6, 1985, the licensee documented justifications to support proposed Technical Specification changes.

The staff has reviewed these proposed changes and finds them justified in each area as delineated below.

Technical Specification 3.3.3--Setpoints

In letters dated October 21 and November 5, 1985, the licensee proposed to change the River Bend Technical Specifications to revise the trip setpoints of Table 3.3.3-2 (Emergency Core Cooling System Actuation Instrumentation Setpoints) for high-pressure core spray (HPCS) pump discharge pressure-high from ≥ 145 psig to ≥ 300 psig and the corresponding allowable value from ≥ 120 psig to ≥ 275 psig, and for HPCS flow-rate-low from ≥ 625 gpm to ≥ 750 gpm and the corresponding allowable value from ≥ 500 gpm to ≥ 710 gpm.

The staff's review of the proposed Technical Specification change has concluded that the change is acceptable as discussed in the evaluation below.

HPCS pump discharge pressure-high and system flow rate-low functions are used to control motor-operated valve (MOV) E22-F012 in the minimum flow line from the HPCS pump discharge to the suppression pool. Valve E22-F012 is designed to open if HPCS pump discharge pressure is normal (indicating that the pump is running) and HPCS system flow rate is low (indicating that the HPCS injection path to the reactor vessel is not available) to prevent the pump from overheating. If pump discharge pressure is low (indicating that the pump is not running), valve E22-F012 is signaled to close. This valve serves as a containment isolation valve and is maintained normally closed when the HPCS system is not being used. Valve E22-F012 is also signaled to close whenever HPCS flow rate is normal (i.e., not low) to ensure that total HPCS flow is injected to the reactor vessel. Both HPCS pump discharge pressure and system flow rate are monitored by a single instrument channel (transmitters E22-N051 and E22-N056, respectively).

The staff's review of the proposed change of the HPCS pump discharge pressure setpoint from ≥ 145 psig to ≥ 300 psig has concluded that (1) the new setpoint is conservative with respect to ensuring that valve E22-F012 is closed when the pump is not running, thus ensuring that the minimum flow line (which penetrates the containment) is isolated and (2) the new setpoint is adequate to detect HPCS pump operation and provide pump protection from overheating if HPCS system low-flow conditions are also detected. The HPCS system normal pump discharge pressure at full-flow conditions is isolated and (2) the new setpoint is adequate to detect HPCS pump operation and provide pump protection from overheating if HPCS system low-flow conditions are also detected. The HPCS system normal pump discharge pressure at full-flow conditions is approximately 1200 psig. The

staff finds this proposed setpoint change, and the corresponding change in the allowable value from > 120 psig to > 275 psig, to be acceptable. The staff's review of the proposed change of the HPCS system flow rate setpoint from > 625 gpm to > 750 gpm has concluded that the new setpoint is (1) high enough to ensure pump protection from overheating at low-flow conditions and (2) adequate to ensure total HPCS flow is directed to the reactor vessel under normal conditions (i.e., when HPCS system flow rate is not low). The HPCS nominal flow rate is 1550 gpm at 1147 psig reactor pressure, and higher at lower reactor pressures. The staff finds the proposed change, and the corresponding change in the allowable value from ≥ 500 gpm to ≥ 710 gpm, to be acceptable.

Table 4.3.3.1-1 (Emergency Core Cooling System Actuation Instrumentation Surveillance Requirements) of the River Bend Technical Specifications requires that the HPCS pump discharge pressure and system flow rate instrument channel trip unit setpoints be calibrated at least once per 31 days. This surveillance will ensure that the setpoints for these functions will be maintained at the desired values.

The licensee is a member of the BWR Owners Instrumentation Setpoint Methodology Group (ISMG) which is currently working with the staff to ensure that acceptable methods are being used to establish trip setpoints and allowable values for protection system instrument channels assumed to operate in the FSAR Chapter 15 transient and accident analysis. The ISMG will address all uncertainties in the detection and processing of protective signals, including modeling uncertainties, analytical uncertainties, transient overshoot, response time, trip unit setting accuracy, test equipment accuracy, primary element accuracy, process measurement accuracy, sensor calibration accuracy, sensor drift, nominal and harsh environmental allowances, and trip unit drift. The adequacy of the methods used to account for these uncertainties in establishing the HPCS pump discharge pressure and system flow rate setpoints will be evaluated as part of the staff's review of the ISMG analysis. Further information concerning the ISMG effort is provided in Section 7.2.2.2 (Instrumentation Setpoints) of the River Bend Station SER (NUREG-0980) and Supplement No. 3 to the SER.

On the basis of the above evaluation, the staff has concluded that the change to the River Bend Technical Specifications proposed by the licensee to revise the setpoints and allowable values in Table 3.3.3-2 for HPCS pump discharge pressure and system flow rate is acceptable.

Technical Specification 3.3.6--Control Rod Block Instrumentation

In letters dated October 21 and November 5, 1985, the licensee proposed to change the River Bend Technical Specifications by deleting footnote (d) from item 4.a (Intermediate Range Monitors--Detector not full in) of Table 3.3.6-1 (Control Rod Block Instrumentation). Footnote (d) states "This function shall be automatically bypassed when the IRM channels are on range 1."

The staff's review of the proposed Technical Specification change has concluded that the change is acceptable as discussed in the evaluation below.

The rod control and information system (RCIS) at River Bend is designed to inhibit control rod movement (i.e., initiate a "rod block") when the reactor mode switch is in the STARTUP or REFUEL position and any intermediate range monitor

(IRM) detector is not fully inserted into the core. The purpose of this rod block function is to ensure that no control rod is withdrawn during low neutron flux level operations unless proper neutron monitoring capability is provided. The as-built design for this rod block function does not include any bypass capability other than the reactor mode switch (bypass occurs when the mode switch is in any position other than STARTUP or REFUEL). Footnote (d) currently allows the rod block function (IRM detector not fully inserted) to be bypassed when the IRM channels are on their lowest range (range 1). The proposed change to delete footnote (d) will make the Technical Specifications consistent with the plant design by no longer allowing the rod block protective function to be bypassed with the mode switch in the STARTUP or REFUEL positions. The staff finds this change to be acceptable. Footnote (d) is only applicable to the IRM downscale rod block function which is provided to prevent continuation of a reactor startup if the operator switches the IRM to a range too high to properly monitor the existing neutron flux level. There is no downscale condition for the lowest IRM range (range 1).

On the basis of the above evaluation, the staff has concluded that the change to the River Bend Technical Specifications proposed by the licensee to delete footnote (d) from item 4.a of Table 3.3.6-1 is acceptable.

Technical Specification 3.3.7.8--Fire Detection Instrumentation

In a letter dated October 21, 1985, the licensee requested a revision to the River Bend Station Technical Specifications concerning the limiting condition for operation for the fire detection instrumentation. By letters dated November 5 and 6, 1985, the licensee withdrew this request and proposed to revise Table 3.3.7.8-1, "Fire Detection Instrumentation," to (1) include fire detectors installed in the electrical and pipe tunnels (Zones SD-83, SD-86, SD-87, SD-88, and SD-89) that are subject to surveillance and (2) to delete fire detectors installed in the annulus area (Zone SD-102) and containment at elevation 95 feet 9 inches (Zone SD-156).

The proposed change to incorporate the detectors in the electrical and pipe tunnels into Table 3.3.7.8-1 reflects actual plant conditions, conforms with the Standard Technical Specifications and is, therefore, acceptable. The licensee's proposal to revise Table 3.3.7.8-1 to include additional detectors as shown in its November 5, 1985, letter should, therefore, be approved.

River Bend Station Technical Specifications Table 3.3.7.8-1, "Fire Detection Instrumentation," currently requires 28 smoke detectors in the annulus area (Zone SD-102) and 2 smoke detectors in containment elevation 95 feet 9 inches (Zone SD-156). The licensee proposes to delete these detectors from the plant Technical Specifications.

The annulus area contains fans, piping, and electrical penetrations. The cables are enclosed in conduits and redundant divisions are separated in accordance with Appendix R to 10 CFR 50 requirements. The annulus is maintained at sub-atmospheric pressure during power operations. Therefore, the annulus, like containment, is normally inaccessible during power operation. The in situ fuel load in the annulus is negligible. Moreover, because of its inaccessibility, limited size, and configuration, the staff does not expect transient combustibles to be introduced into the area during power operation.

Zone SD-156 of containment elevation 95 feet 9 inches is the suppression pool. All cables are in conduit. The fuel load in the zone is negligible.

Because both the annulus area and containment elevation 95 feet 9 inches are virtually devoid of combustibles and ignition sources, the staff does not expect a fire to occur in either zone. If a fire does occur, the staff is of the opinion that it would self-extinguish before exposing redundant safety-related divisions. The spatial separation of redundant divisions of cables as well as their enclosure in conduit, provide further assurance that at least one division of safety-related cables will be available following a fire in either location.

On the basis of its evaluation, the staff concludes that deleting these detectors from the plant Technical Specification Table 3.3.7.8-1 would not significantly decrease of level of fire safety. Therefore, the licensee's proposal to delete the Zone SD-102 and Zone SD-156 detectors from Table 3.3.7.8-1, "Fire Detection Instrumentation," from the River Bend Station Technical Specifications is approved.

In the basis of its evaluation, the staff concludes that the following revisions to the River Bend Station Technical Specifications are acceptable:

- (1) Revision of Table 3.3.7.8-1, "Fire Detection Instrumentation," to include additional fire detectors installed in the steam and electrical tunnels as delineated in the licensee's letters of November 5 and 6, 1985.
- (2) Revision of Table 3.3.7.8-1, "Fire Detection Instrumentation," to delete fire detectors installed in the annulus area and containment at elevation 95 feet 9 inches.

Technical Specification 3/4.3.9--Plant Systems Actuation Instrumentation

In Technical Specification 3/4.3.9 issued for the low-power license, the containment-to-annulus differential pressure instrument setpoints were -11.98 ± 0.22 inches H_2O (nominal setpoint) and $-11.98 \pm 0.31, -0.27$ inches H_2O (allowable value). In a letter dated October 21, 1985, the licensee proposed to change the setpoint (allowable value) to $-11.98 \pm 0.27, -0.31$ inches H_2O . In the justification provided to support the proposed change, the licensee stated that the proposed change makes the allowable value consistent with revised design calculations. In a subsequent letter dated November 6, 1985, the licensee revised the technical justification to clarify that the proposed change corrected a typographical error.

On the basis of the staff's review of the information provided, the staff finds that the deficiency in the Technical Specification was the result of a typographical error. The proposed change corrects this error and is, therefore, acceptable.

Technical Specification 3/4.4.3--Reactor Coolant System Leakage, Leakage Detection Systems

In a letter dated November 5, 1985, the licensee requested a revision to River Bend Station Technical Specification 3/4.4.3 concerning the surveillance requirements to determine the operability of the floor drain flow monitoring system for detecting reactor coolant pressure boundary leakage. The current

Technical Specifications require surveillance testing of the floor drain sumps but do not address the operability of the drain lines which conduct the leakage by gravity to the sumps. The licensee has proposed adding a new surveillance requirement 4.4.3.1.d to require "flow testing the drywell floor drain sump inlet piping for blockage at least once every 18 months." This additional requirement will provide greater assurance that the drywell floor monitoring system will detect unidentified leakage from the reactor coolant pressure boundary and is, therefore, acceptable. The licensee has also requested that a note be added to this new surveillance requirement which would exempt the sump inlet piping from testing until the first refueling. Since this piping was tested as part of the requirements for system turnover from construction to operation and based on the low probability of a high-energy pipe break during the first cycle of operation, the requested delay in the surveillance until the first refueling is acceptable.

In a letter dated November 5, 1985, the licensee requested a change to Technical Specification 3/4.4.3 to liberalize the leak-rate acceptance criteria for pressure isolation valves. The staff reviewed the licensee's proposed changes in Technical Specification 3/4.4.3 and found them functionally the same as generic changes to leak-rate acceptance criteria for BWR Technical Specifications approved by the staff (memorandum dated February 14, 1985, from H. R. Denton to V. Stello). The proposed change is, therefore, acceptable.

Technical Specification 3.4.5--Specific Activity

In a letter dated November 5, 1985, supplemented by a letter dated November 13, 1985, the licensee requested a change to River Bend Technical Specification 3.4.5 regarding the ACTIONS required to be taken in the event that a reactor coolant specific activity limit is exceeded. The requested change is in response to NRC Generic Letter 85-19, "Reporting Requirements on Primary Coolant Iodine Spikes," September 27, 1985.

Generic Letter 85-19 provided licensees and applicants with model Technical Specifications, in Standard Technical Specification format, showing the revisions that may be used for proposed changes to existing facility Technical Specifications.

The staff compared the licensee's proposed change to the model provided with Generic Letter 85-19 and found that the two are identical. Therefore, the proposed change is acceptable.

Technical Specification 3.6.1.4--Primary Containment Air Locks

In discussions with the staff, the licensee proposed certain changes to Section 3.6.1.4 of the Technical Specifications for River Bend Station. The proposed change was intended to clearly identify that River Bend containment has two independent air locks.

During discussions with the staff, doors failed at River Bend, raising a more serious concern--whether an air lock with an inoperable door could be used for a limited period of time while repairs were in process. In response to this request, the staff made certain recommendations to be incorporated into the Technical Specifications. These changes will permit the licensee to continue

plant operation and allow personnel entry and exit through an air lock for up to 7 days when one door on both air locks becomes inoperable, through implementation of certain administrative controls.

The staff also recommended inclusion of administrative controls that permit the licensee to perform repairs and/or maintenance on the interlock mechanism which were incorporated into the WNP-2 Technical Specifications.

The staff has established that with the implementation of administrative controls there exists reasonable assurance that the containment integrity will not be violated whenever the interlock mechanism or one air lock door becomes inoperable. The staff, therefore, recommended these changes to the licensee who agreed to incorporate them in the River Bend Technical Specification.

Technical Specification 3.7.7--Fire Rated Assemblies

License Condition 3.a of Attachment 1 to Facility Operating License NFP-40 required that the licensee complete the fire wrapping of electrical raceways in the fuel building before exceeding 5% of rated power. A one-time exception to the plant Technical Specifications was included to address this license condition. Technical Specification 3.7.7 requires that all fire barrier assemblies be operable. The footnote to this specification states that the fuel pool cooling system cable fire wrap is not required to be operable until October 31, 1985.

In a letter dated November 6, 1985, the licensee informed the staff that the license condition was fulfilled. Therefore, the staff concludes that the licensee's request to delete the footnote to Technical Specification 3.7.7 should be approved.

Technical Specification 3.8.4.2--Other Overcurrent Protection Devices

The licensee has included a requirement in the River Bend Technical Specifications to test the operability of the overcurrent elements in redundant circuit breakers where they are used as isolation devices between non-Class 1E loads and Class 1E power supplies. In a letter dated October 21, 1985, the licensee has proposed to delete the requirement to shut the plant down in 7 days if the overcurrent elements are found inoperable and not restored to operable status. Instead the subject circuit breakers would be opened and periodically checked that they remain in the open position until overcurrent elements are once again returned to an operable condition. This change is acceptable since it temporarily removes the non-Class 1E/Class 1E interface of concern until the overcurrent elements are returned to an operable state.

Technical Specification 3/4.9.6--Refueling and Fuel Handling Platforms

In a letter dated October 21, 1985, the licensee requested a revision to the River Bend Station Technical Specification 3/4.9.6.c concerning the demonstration of the operability of the uptravel interlock on the refueling platform. The refueling platform is used for handling new and irradiated fuel bundles and control rods. The interlock is provided to limit the uptravel of the "top of the active fuel" to 8 feet 6 inches below the water level in order to provide adequate radiation protection for personnel. Because new fuel does not pose any radiation hazard, the licensee has proposed limiting the uptravel to the "top of the active irradiated fuel."

On the basis of the carrying height of new fuel (unirradiated) not posing any radiation hazard, the incorporation of the word "irradiated" into Technical Specification 3/4.9.6.c will not result in adverse consequences to the health and safety of the public or to the environment, and is, therefore, acceptable.

Technical Specification 3.9.12--Inclined Fuel Transfer System

In a letter dated November 5, 1985, the licensee proposed to remove a footnote to Technical Specification 3.9.12 which allows operation without an operable blocking valve and liquid level sensor during initial core loading.

Since the initial fuel loading was complete in September 21, 1985, the footnote will serve no purpose and should be removed.

Technical Specification 3.12.1--Radiological Environmental Monitoring Program

In a letter dated November 5, 1985, the licensee proposed modifying footnote (g) in Table 3.12.1-1 of the Technical Specifications. The footnote would be changed from "Composite samples shall be collected weekly to October 1, 1985. Thereafter, samples shall be collected at intervals which are very short (e.g., hourly) relative to the compositing period (e.g., monthly)" to "composite samples shall be collected at intervals which are very short (e.g., hourly) relating to the compositing period (e.g., monthly)".

Since October 1, 1985, has passed, the staff concurs with the change because the deleted portion of the footnote no longer serves any purpose and should be removed.

Technical Specification 4.8.1-- AC Sources

In a letter dated October 21, 1985, the licensee proposed new Technical Specification limits for the starting and load rejection surveillances on the Division III (HPCS) diesel generator (diesel generator 1C).

The change to the load rejection surveillance is contained in Section 4.8.1.1.2.f.2 of the River Bend Technical Specification. The existing Technical Specification requires that during a partial load reject (single largest load on the diesel generator), the voltage and frequency be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz while maintaining engine speed less than 75% of the difference between nominal speed and the overspeed trip setpoint, or 15% above nominal, whichever is less. The proposed Technical Specification deletes the requirement to maintain the voltage and frequency and retains only the engine speed limits. The staff was concerned that by eliminating the maximum voltage excursion limits on diesel generator 1C, voltages could be reached during an actual partial load rejection which could damage vital equipment which remains connected to the bus.

In a subsequent letter dated November 19, 1985, the licensee stated that on the basis of current test data, the voltage transient on a load rejection will be limited to 5400 volts. The licensee further stated that the loads on the Division III diesel generator bus will withstand this brief voltage transient without any adverse effect on the performance of the electrical components. The 5400-volt limit presently exists in Section 4.8.1.1.2.f.3 of the River Bend Technical Specification as a maximum limit which must not be exceeded.

during a full load rejection test on diesel generator 1C. Because the full load rejection conducted during this test is more severe than the partial load rejection conducted during the Section 4.8.1.1.2.f.2 test on diesel generator 1C, the staff is satisfied that the one test conducted in Section 4.8.1.1.2.f.3 adequately verifies the diesel generator 1C capability to maintain voltage ≤ 5400 volts. A maximum voltage excursion limit, therefore, does not have to be provided for the Section 4.8.1.1.2.f.2 test, and the proposed changes to this section of the River Bend Technical Specifications are acceptable.

The changes to the diesel generator 1C starting surveillances are contained in Sections 4.8.1.1.2.a.4, 4.8.1.1.2.f.5, and 4.8.1.1.2.f.8 of the River Bend Technical Specifications. The existing Technical Specification requires that generator voltage and frequency shall be 4160 ± 420 volts and 60 ± 1.2 Hz within 10 seconds after the start signal. The proposed specification requires for diesel generator 1C that the generator voltage and frequency shall be greater than 3740 volts and 58.8 Hz within 10 seconds and 4160 ± 420 volts and 60 ± 1.2 Hz within 13 seconds. The staff was concerned that by eliminating the maximum voltage and frequency limits during the first portion of the starting interval, the maximum voltage and frequency excursions encountered during an actual start of the 1C diesel generator could cause adverse effects on the connected loads or could cause a trip of the diesel generator on overspeed.

In a subsequent letter dated November 19, 1985, the licensee stated that voltage and frequency transients due to diesel generator starting on Division III will be limited to less than 5400 volts and 66.75 Hz, and the Division III loads can withstand these brief transients without any adverse effect on the performance of the electrical components. The overspeed setpoint of diesel generator 1C is 69 Hz.

In a meeting on November 19, 1985, the licensee agreed to include the 5400-volt and 66.75-Hz maximum limits in the diesel generator 1C starting surveillances contained in Sections 4.8.1.1.2.a.4, 4.8.1.1.2.f.5, and 4.8.1.1.2.f.8 of the River Bend Technical Specifications. The staff has reviewed the changes to these sections made in the meeting and now finds the proposed specification to be acceptable.

Technical Specification 6.5.1.2--Facility Review Committee Composition

In a letter dated October 21, 1985, the licensee requested that a position with instrumentation and control expertise be added to the Facility Review Committee (FRC). The staff concurs in the addition of this position to the FRC. The number constituting a quorum remains satisfactory.

18 HUMAN FACTORS ENGINEERING

18.1 Control Room

18.1.2 Evaluation of DCRDR Program Plan Report

18.1.2.8 Safety Parameter Display System

In Supplement 3 to the River Bend Station SER, the staff identified three items which remained to be resolved with the River Bend safety parameter display system (SPDS):

- (1) The applicant has committed to a specific date for making the SPDS operational (February 28, 1986).
- (2) The system being implemented by the applicant has been suitably isolated from plant safety systems.
- (3) The system being implemented is similar to the General Electric SPDS which has been reviewed by the staff.

In addition, the staff conditioned the low-power license on the SPDS being installed and operational by March 1, 1986.

On September 23, 1985, the staff conducted an onsite audit of the River Bend Station SPDS. The results of that audit will be published in a future SER supplement. However, on the basis of the audit, the staff concludes that items 2 and 3 above are satisfactorily resolved. In view of the licensee's commitment to have the SPDS operational by February 28, 1986, the staff concludes that this commitment is sufficient and that aspect of License Condition 17 dealing with the SPDS can be removed from the full-power license.

19 REPORT OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

A Subcommittee of the Advisory Committee on Reactor Safeguards (ACRS) considered the application for a full-power operating license for River Bend Station at a meeting in Washington, D.C., on September 11, 1985. The full committee reviewed the application at its 305th meeting on September 13, 1985. A copy of the Committee's report to the Chairman of the Nuclear Regulatory Commission dated September 16, 1985, is included in this supplement as Appendix P. The Committee's earlier (interim) review of the licensee's application for a low-power license was discussed in Supplement 1 of the River Bend Station SER and it appeared in Supplement 1 as Appendix F.

At the meeting to discuss the full-power license, the Committee found satisfactory the licensee's modification which will provide a cooling water source for the HPCS diesel generator independent of power from the standby diesel generators.

The Committee discussed the licensee's limited probabilistic risk assessment (PRA) and the licensee's review of the seismic design margin for some equipment important to the accomplishment of safe shutdown. Since these issues are both being addressed generically by the staff and the ACRS, the Committee recommended that resolution of these issues need not delay the issuance of a full-power license.

The Committee discussed the licensee's plans for developing emergency procedures to cover possible containment venting in the event of accidents beyond the design basis. The Committee recommended that further work is needed for venting for River Bend, but that the review and acceptance of such a procedure need not be completed before full-power operation. The Committee expects to review the results of the licensee's assessment at a later date. The staff concurs with the Committee's request on this matter. The staff position is presented in Section 13.5.2.3 of this supplement. The staff intends to meet with the Committee on this matter in a year.

The Committee found it acceptable for the licensee to proceed to full power while the resolution of hydrogen control is pursued. The Committee stated its desire to review the proposed resolution when the necessary information and evaluations are available. The staff agrees with the Committee's position on hydrogen control. The staff's evaluation of the licensee's hydrogen control program is presented in Section 6.2.5 of Supplements 2, 4, and 5 of the SER. The staff intends to meet with the Committee to review the staff evaluation of the Hydrogen Control Owners Group program and applicability to the various facilities.

The licensee does not plan to provide a backup power source for the hydrogen ignition system that would function during station blackout. The Committee favors providing such a backup power source. However, the Committee intends to address this issue in future generic discussion of hydrogen control.

The Committee recommended that subject to its comments and satisfactory completion of construction, staffing, and preoperational testing, "there is reasonable assurance that the River Bend Station, Unit 1 can be operated at power levels up to 2894 MWt without undue risk to the health and safety of the public."

APPENDIX A

CONTINUATION OF CHRONOLOGY OF NRC STAFF RADIOLOGICAL REVIEW OF RIVER BEND STATION

August 7, 1985	Letter from applicant responding to NRC request for information. Current operating procedures require that no action be taken from outside main control room to safely shut down plant following a design-basis accident. Operators are trained in use of procedures.
August 7, 1985	Letter from applicant forwarding "Reactor Containment Building Integrated Leakage Rate Test, Types A, B, and C, Preoperational Test." Periodic retest schedule for containment leakage will follow 10 CFR 50, Appendix J criteria.
August 7, 1985	Letter from applicant forwarding information about design of HPCS diesel generator engine-mounted piping and components and HPCS diesel generator lubrication oil system piping and components. System is deemed satisfactory to perform required function.
August 7, 1985	Letter from applicant forwarding response to July 23, 1985, request for additional information on July 1, 1985, hydrogen control equipment survivability report and response to discussion questions resulting from July 12 and 24 meetings between NRC and licensee.
August 7, 1985	Letter from applicant forwarding marked-up proposed revisions to Technical Specifications dealing with reactor protection system instrumentation, in response to staff request.
August 8, 1985	Letter from applicant forwarding supplemental information on containment with ultimate capacity analysis for facility.
August 8, 1985	Letter from applicant forwarding updated FSAR Table 2.5-20 for River Bend Station Unit 1, reflecting revised design differential settlement ranges. No change to Technical Specifications is required.
August 9, 1985	Letter from applicant discussing review of final draft Technical Specifications. Certifies that Technical Specifications accurately reflect plant design, FSAR, and other documented commitments, per staff letter of July 25, 1985. Affidavit is enclosed.

August 9, 1985	Letter from applicant forwarding summary discussion of long-term revisions under consideration, per July 25, 1985, request. Revisions improve operational flexibility within approved safety analyses and do not affect certification. Revised marked-up Technical Specifications page is also enclosed.
August 12, 1985	Letter from applicant advising of completion of seismic qualification for Copes Vulcan modulating globe valves and HPCS diesel generator. Valves are qualified by static analysis to ensure structural integrity.
August 12, 1985	Letter to applicant forwarding environmental assessment and finding of no significant impact regarding exemptions from certain requirements of 10 CFR 50, allowing delay in completion of seismic qualification of control panel and replacing air-operated valves.
August 12, 1985	Letter from applicant requesting temporary exemptions from GDC 2 (10 CFR 50, Appendix A) regarding seismic qualification of one electrical panel and two air-operated valves for suppression pool pumpback system. Justification is enclosed.
August 13, 1985	Letter from applicant withdrawing August 12, 1985, exemption request for Square D, 125 dc panelboard. Seismic qualification for panelboard, Specification 242.421, is completed.
August 13, 1985	Letter from applicant forwarding revision to FSAR resolving recently identified inconsistency regarding structural welding code requirements. Revision will be included in future FSAR amendment. No changes to Technical Specifications are required.
August 13, 1985	Letter from applicant forwarding justification for interim operation for Class 1E electrical components in harsh environment.
August 14, 1985	Letter from applicant forwarding revisions to environmental qualification document, Appendix B.1, "System Component Evaluation Work Sheet SRN 247491-3." Revisions support justification for interim operation for two air-operated valves in suppression pool pumpback system.
August 16, 1985	Letter from applicant forwarding "Equipment Survivability Enhancement." Hydrogen Control Owners Group quarter-scale testing performed 17 scoping tests demonstrating that hydrogen burn phenomena modeled by CLASIX-3 computer does not occur.

August 19, 1985	Letter from applicant forwarding "Revised Stuck Open Relief Valve Base Case" and Supplement 2 to "Preliminary Equipment Survivability Report," per August 12, 1985, meeting. Analysis of wetwell hydrogen igniters for revised thermal profiles will be submitted by August 21, 1985.
August 22, 1985	Letter from applicant providing status of utility justifications for interim operation for which environmental qualification is completed. Updated table reflecting equipment qualification is enclosed.
August 22, 1985	Letter from applicant forwarding Supplement 3 to "Preliminary Equipment Survivability," per August 19, 1985, request. Report includes information about igniters and cabling located in wetwell region.
August 22, 1985	Letter to applicant forwarding SSER 2 (NUREG-0989) relevant to application for operating license. Without enclosures.
August 23, 1985	Generic Letter 85-16 issued to all licensees of operating reactors and applicants for operating licenses regarding high boron concentrations. Service list is enclosed.
August 23, 1985	Generic Letter 85-17 issued to all licensees of operating reactors, applicants for operating licenses, and holders of construction permits about availability of Supplements 2 and 3 to NUREG-0933, "Prioritization of Generic Safety Issues." Service list is enclosed.
August 26, 1985	Letter from applicant updating interim response of January 15, 1985, to equipment and procedural problems identified by ACRS during July 12, 1984, meeting. Corrective actions include pump design modification, seismic capability investigation, and emergency procedure review.
August 26, 1985	Letter from applicant providing status of justification for interim operation on Rosemount, Inc., pressure transmitter Model 1152PXX22T0280PB. Environmental qualification of transmitters is successfully completed. Update about qualification of transmitters is enclosed.
August 26, 1985	Letter from applicant forwarding Revision 1 to Procedure OSP-0007, "Preparation of Operations Section Procedures," and Revision 0 to OSP-0008, "Verification and Validation of Emergency Operating Procedures."
August 27, 1985	Letter from applicant forwarding details of utility actions in response to staff requests that deal with fitness-for-duty program. Plant is constructed in substantial agreement with docketed commitments and applicable regulatory requirements.

August 28, 1985	Letter to applicant forwarding Generic Letter 85-15 about deadlines for compliance with 10 CFR 50.40 sent to all licensees on August 6, 1985. Requests for extension for compliance beyond November 30, 1985, received after September 30, 1985, will be considered untimely and may be denied.
August 28, 1985	Letter from applicant forwarding clarification of Enclosure II-1 to August 27, 1985, letter about employment of Individual A with Stone & Webster from December 1980-June 1985, in response to inquiry.
August 29, 1985	Letter to applicant forwarding License NPF-40, list of outstanding items to be completed before indicated condition, Federal Register notice of issuance of license, Amendment 1 to Indemnity Agreement B-104, and assessment of effects of license duration on matters discussed in Final Environmental Statement.
August 29, 1985	Letter from applicant forwarding addendum to Enclosure II-1 of August 27, 1985, letter and revised Enclosure II-3, in response to inquiry about qualification of Individual A and documentation review of weld joints.
August 30, 1985	Letter to applicant forwarding listing of currently approved security and guard training and qualification plans. Without enclosure.
September 4, 1985	Letter from applicant forwarding "Evaluation of CLASIX-3 Conservatisms and Quarter-Scale Tests."
September 6, 1985	Letter from applicant forwarding results of seismic qualification miniaudit, conducted by NUTECH Engineers, Inc., during May 20-August 9, 1985, concluding that adequate program is implemented that conforms to staff criteria and standards.
September 6, 1985	Letter to applicant forwarding SSER 3 (NUREG-0989). Without enclosure.
September 6, 1985	Letter to applicant forwarding revised agenda for safety parameter display system audit during September 23-25, 1985. Audit is performed as part of review of application for operating licensee.
September 9, 1985	Letter from applicant forwarding revisions to preservice inspection plan, including updates and relief requests, for review and approval.
September 9, 1985	Letter from applicant forwarding executed Amendment 1 to Indemnity Agreement B-104, per request.

September 12, 1985	Letter from applicant forwarding updated environmental qualification summary listing of justifications for interim operation. Environmental qualification for listed equipment has been completed.
September 19, 1985	Letter from applicant forwarding response to SSER 3, Section 13.5.2.3 and additional information requested during September 12, 1985, meeting regarding containment venting. Containment venting path meets BWR emergency procedure guidelines.
September 19, 1985	Summary of September 11, 1985 ACRS Subcommittee meeting in Washington, D.C., on River Bend to continue review of utility request for operating license.
September 23, 1985	Letter to applicant acknowledging receipt of June 25, 1985, letter regarding proposed schedule for meeting requirements of hydrogen control rule. Additional period of time will be required to implement equipment enhancements assuring survivability of equipment during hydrogen burn.
September 24, 1985	Letter from applicant advising of revision to Procedure ADM-0053 regarding Asiatic Clam Control Program changing Section 5.4.1 regarding low alarm setpoint for chlorine analyzer in normal service water return header to 5 ppm and making editorial changes to Section 5.5.1.
September 25, 1985	Letter from applicant submitting revised paragraph for Item 1 of Enclosure 1 to no significant hazards evaluation filed with September 24, 1985, application to amend License NPF-40, changing HPCS diesel generator system.
September 25, 1985	Letter to applicant forwarding ACRS report to NRC regarding operating license application for facility.
September 25, 1985	Letter to applicant forwarding Draft Full-Power License NPF-40 for review and comment. Status report on commitments made in low-power operating license requested. Weekly reports should be forwarded beginning on September 27, 1985.
September 26, 1985	Letter from applicant providing current status of completed initial criticality and 5% license condition listed under Item 2.C of license, Subitems (1) through (18) as applicable. Initial criticality expected by October 5, 1985.
September 26, 1985	Letter to applicant confirming NRC September 26, 1985, authorization for change in Technical Specifications, as requested in utility's September 24 and 25 letters. License NPF-40 amended on September 26, 1985, by increasing maximum transient generator voltage prescribed for HPCS diesel generator to 5400 volts.

September 27, 1985	Generic Letter 85-18 issued to all power licensees regarding "Operator Licensing Exams." Service list enclosed.
September 27, 1985	Letter to applicant approving control program for Asiatic clams submitted in June 21 and September 24, 1985, letters, including chlorination system to control clams prior to introducing Mississippi River water into normal and standby service water system.
September 30, 1985	Letter from applicant requesting extension of environmental qualification of electrical equipment per 10 CFR 50.49 if listed items are not qualified by November 30, 1985. Remaining items include cable (Rockbestos), level elements, flow switches, and solenoids.
September 30, 1985	Letter from applicant providing status of utility justifications for interim operation of listed equipment for which environmental qualification is complete. Updated table, reflecting qualification of equipment, enclosed.
October 1, 1985	Letter to applicant forwarding SSER 4 (NUREG-0989) for facility.
October 3, 1985	Letter from applicant forwarding weekly status report for license conditions and other commitments completed during previous week and since issuance of low-power license, per September 25, 1985, request.
October 4, 1985	Letter from applicant certifying that Technical Specifications on high/low-pressure interface leakage accurately reflect commitments detailed in SSER 3. Affidavit is enclosed.
October 5, 1985	Letter from applicant offering no additional comments on draft full-power operating license, per September 25, 1985, request. Additional weekly reports will be provided until issuance of full-power license.
October 9, 1985	Letter from applicant advising that recommendations for turbine maintenance in NUREG-0989 be reviewed. Turbine system maintenance program based on manufacturer's calculations of missile generation probabilities and staff guidelines will be submitted before November 1, 1987.
October 10, 1985	Letter from applicant informing that two air operators requested in August 12, 1985, letter for temporary exemption from GDC 2 are installed on valves in suppression pool enclosed per request.
October 10, 1985	Letter from applicant submitting status of justification for interim operation. Environmental qualification of air-operated valves 144 and 145 is complete. Updated table reflecting qualification of equipment is enclosed.

October 10, 1985	Letter from applicant advising that utility will provide results of review and any requested information contained in update to SER (NUREG-0989), Section 13.5.2 regarding containment venting by July 31, 1986.
October 10, 1985	Letter from applicant submitting weekly status report identifying license conditions and other commitments completed during previous week and cumulatively since issuance of low-power license. Cumulative listing and commitments are enclosed.
October 11, 1985	Letter to applicant forwarding Amendment 1 to License NPF-40 and safety evaluation. Amendment increases maximum transient generator voltage prescribed for HPCS diesel generator in Item 4.8.1.1.2(f)(3) of Technical Specifications from 4784 to 5400 volts.
October 17, 1985	Letter from applicant forwarding weekly status report consisting of cumulative list of license conditions and commitments completed since low-power license was issued, per staff letter dated September 25, 1985.
October 18, 1985	Letter from applicant forwarding updated table reflecting environmental qualification summary listing of justifications for interim operation. Revision 4 to SRN 247433-1, "Flow Detecting Elements by Fluid Components, Inc.," is complete.
October 21, 1985	Letter from applicant forwarding for review, list of changes utility requests to be included in Technical Specifications regarding full-power operating license. Items represent corrections, clarifications, and enhancements to Technical Specifications. No amendment to present low-power license is sought.
October 24, 1985	Letter from applicant forwarding weekly status report identifying license conditions and other commitments completed during previous week and cumulatively since issuance of low-power license, in response to September 25, 1985, letter.
October 24, 1985	Letter from applicant forwarding revised FSAR pages, reflecting changes in implementation of loading of Division I and II standby diesel generators. Two loads are reduced below projected levels per May 16, 1985, letter, but meet original design criterion.
October 25, 1985	Letter from applicant informing that environmental qualification of listed Rockbestos cable has been successfully completed. All outstanding justifications for interim operation will be completed before November 30, 1985, per 10 CFR 50.49. Final updated table regarding qualification is enclosed.

October 25, 1985	Letter from applicant confirming that 3-inch 300-lb air-operated globe valves are seismically qualified using static analysis, per October 10, 1985, response. Operability of valve/operator assembly has been established based on similarity to tested valve/operator prototype.
October 28, 1985	Letter from applicant providing status of human engineering discrepancies implementation. Approximately 82% of human engineering discrepancies are completed. Remaining 41 of 226 will be completed before exceeding 5% of rated power.
October 28, 1985	Letter from applicant forwarding "Cajun Electric Power Cooperative, Inc., 1984 Annual Report."
October 28, 1985	Letter to applicant confirming plans for AEOD proposed site visit on November 13, 1985, to discuss information regarding September 23, 1985, partial draindown of reactor vessel. List of attendees is provided. Proposed agendum is enclosed.
October 30, 1985	Letter from applicant forwarding Fisher Controls International Inc., October 25, 1985, letter establishing design similarity to representative valve/operator prototype, per staff request.
October 31, 1985	Letter from applicant informing that effect of increasing standby gas treatment system fan start time from 30 seconds to 40 seconds is evaluated. Offsite accident dose, control room habitability, and technical support center habitability are potentially affected.
October 31, 1985	Letter from applicant forwarding weekly status report identifying license conditions and commitments in response to staff letter of September 25, 1985.
November 1, 1985	Letter to applicant forwarding request for additional information regarding emergency procedures for containment venting. Response is required by August 1, 1986.
November 1, 1985	Letter to applicant forwarding request for additional information regarding seismic qualification. Three items are noted as requiring further action.
November 4, 1985	Letter from applicant submitting information in response to staff request regarding long-term availability of valve operator motors employing magnesium motors. Condition is addressed by utility in July 24, 1985, report regarding Reliance Class RH ac motors.
November 4, 1985	Letter from applicant responding to staff request of November 1, 1985, for additional information regarding emergency procedures for containment venting. Information will be provided by August 1, 1986.

November 4, 1985	Letter from applicant forwarding information regarding seismic qualification and general maintenance practices, per November 1, 1985, request. Maintenance personnel are instructed and general maintenance practices are amended to check for missing and loose screws before returning safety-related equipment to service.
November 5, 1985	Letter from applicant forwarding revisions to October 21, 1985, Technical Specifications change request for full-power operating license, based on discussion with staff. Revisions clarify basis for changing ECCS actuation instrumentation setpoints for fire detection instrumentation.
November 5, 1985	Letter from applicant forwarding composite list of requested Technical Specifications changes for full-power operating license, discussions, justification, and proposed markup for each change. No change to License NPF-40 is requested.
November 6, 1985	Letter from applicant submitting additional information regarding background of October 21 and November 5, 1985, Technical Specifications change requests, in response to recent staff request. Smoke detection in Zones SD-102 and SD-156 is unnecessary because of the absence of safety-related equipment.
November 7, 1985	Letter from applicant forwarding weekly status report regarding license conditions and other commitments completed during previous week and cumulatively since issuance of low-power license, in response to September 25, 1985, letter.
November 7, 1985	Letter from applicant notifying that construction of normal cooling towers 3 and 4 is completed and testing is scheduled to be completed by December 25 and November 15, 1985, respectively.
November 13, 1985	Letter from applicant forwarding marked-up Technical Specifications Pages 8 3/4 4-4, B 3/4 4-5, and 6-16 regarding Generic Letter 85-19 inadvertently omitted during reproduction of November 5, 1985, letter.
November 14, 1985	Letter from applicant informing that utility will comply with NRC's September 1985 policy statement regarding shift technical advisors on shift before startup after first refueling outage. When shift technical advisor is utilized, fifth operator will be assigned to shift.
November 14, 1985	Letter from applicant forwarding cumulative listing of license conditions and other important commitments completed since issuance of low-power license, in response to September 25, 1985, letter.

APPENDIX B

BIBLIOGRAPHY

Federal Emergency Management Agency, FEMA-43, "Standard Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants."

U.S. Nuclear Regulatory Commission, Generic Letter 84-16.

---, NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

---, NUREG-1142, "Technical Specifications River Bend Station," August 1985.

---, SECY-85-150, "Final Policy Statement on Engineering Expertise on Shift."

APPENDIX D
ACRONYMS AND INITIALISMS

ACRS	Advisory Committee on Reactor Safeguards
A&N	alerting and notification
BET	bachelor's degree in engineering technology
BWR	boiling-water reactor
CFR	Code of Federal Regulations
EPG	Emergency Procedure Guidelines
FEMA	Federal Emergency Management Agency
FRC	Facility Review Committee
GDC	General Design Criterion
HCOG	Hydrogen Control Owners Group
HPCS	high-pressure core spray
IRM	intermediate range monitor
ISMG	Instrumentation Setpoint Methodology Group
MOV	motor-operated valve
PE	Professional Engineer
PRA	probabilistic risk assessment
RCIS	rod control and information system
SER	Safety Evaluation Report (NUREG-0989)
SGTS	standby gas treatment system
SPDS	safety parameter display system
SRO	senior reactor operator
SRV	safety relief valve
SSER	Supplement to Safety Evaluation Report
STA	shift technical advisor
TRFC	total residual-free chlorine

APPENDIX E
PRINCIPAL STAFF CONTRIBUTORS

<u>Name</u>	<u>Title</u>	<u>Review Branch</u>
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APPENDIX P

ACRS REPORT ON FULL-POWER OPERATION OF
RIVER BEND STATION, UNIT 1



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

September 16, 1985

Honorable Nunzio J. Palladino
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Dr. Palladino:

SUBJECT: ACRS REPORT ON FULL POWER OPERATION OF RIVER BEND STATION,
UNIT 1

During its 305th meeting, September 12-14, 1985, the Advisory Committee on Reactor Safeguards reviewed the application of Gulf States Utilities Company (Applicant), acting on behalf of itself and as an agent for the Cajun Electrical Power Cooperative for a license to operate the River Bend Station, Unit 1 at full power. A Subcommittee meeting was held on September 11, 1985 in Washington, D. C. to consider this request. During this review, we had the benefit of discussions with representatives of the Applicant and the NRC Staff. We also had the benefit of the documents referenced, including written comments from a member of the public. The Committee commented on the application to operate the River Bend Station in an interim report dated July 17, 1984 and on the application to construct this Station in its report dated January 14, 1975.

The Committee, in its July 17, 1984 report, stated that it had not yet completed its review and listed a number of matters yet to be considered. Except as indicated below, we conclude that these matters have been dealt with satisfactorily.

The Committee noted in its July 17, 1984 report that the dedicated diesel generator that drives the high pressure core spray (HPCS) pump was dependent on cooling water supplied by pumps powered by the other two emergency diesel generators during loss of off-site power conditions. The Applicant has modified the design to provide a power source for these cooling water pumps which is supplied by the dedicated diesel generator. We find this to be satisfactory.

The Committee also commented on the Applicant's plans for the performance of a limited probabilistic risk analysis and on the advisability of reviewing the seismic design margin for the equipment important to the accomplishment of safe shutdown. The Applicant has performed a limited PRA and has reviewed the seismic capability of some of the plant equipment and found considerable margin. Both of these issues are being addressed generically by the NRC Staff and the ACRS, and their resolution need not delay the issuance of the full power license for this unit.

September 16, 1985

The Applicant and the NRC Staff have been working on the development of emergency operating procedures to cover possible containment venting in the event of certain postulated accidents beyond the design basis. We believe that further work is needed to develop an appropriate procedure for venting for River Bend but believe that the review and acceptance of such a procedure need not be completed prior to full power operation.

We recommend that resolution of this matter be accomplished within a year after the issuance of a full power operating license. We wish to have an opportunity to review the proposed resolution.

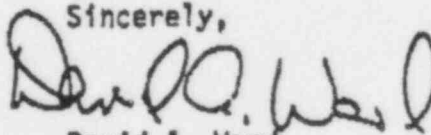
The matter of hydrogen control is still in a developmental stage. The Applicant is working with the Hydrogen Control Owners Group (HCOG) and is depending appreciably on a $\frac{1}{2}$ -scale experimental program by HCOG to develop data on burning conditions and resulting environments. We urge that sufficient diversity in postulated accident scenarios be used in judging matters such as potential hydrogen production rates. In view of the complex heat transfer and fluid mechanics phenomena involved and the associated uncertainties, the details of the experimental program will need careful analysis and proper attention will have to be given to extrapolating the $\frac{1}{2}$ -scale results to full scale.

We agree that it is acceptable for River Bend to proceed to full power while resolution of the hydrogen control matter is pursued. We wish to review the proposed resolution when the necessary information and evaluation are available.

The Applicant does not plan to provide, for the hydrogen ignition system, a backup power source that would function during station black-out. We favor providing such a backup power source. We intend to address this issue in our future generic discussions on hydrogen control.

We believe that, subject to the above comments and satisfactory completion of construction, staffing, and preoperational testing, there is reasonable assurance that the River Bend Station, Unit 1 can be operated at power levels up to 2894 Mwt without undue risk to the health and safety of the public.

Sincerely,



David A. Ward
Chairman

References:

1. Gulf States Utilities Company, "Final Safety Analysis Report, River Bend Station," Volumes 1-20 and Amendments 1-21

2. U. S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the Operation of River Bend Station," NUREG-0989, dated May 1984
3. U. S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the Operation of River Bend Station," NUREG-0989, Supplement No. 1 dated October 1984; Supplement No. 2 dated August 1985; Supplement No. 3 dated August 1985
4. Memo from Thomas M. Novak, NRC Division of Licensing, to Raymond F. Fraley, ACRS, dated August 23, 1985, Subject: River Bend Station - Draft SSER 4
5. Letter from Jerry N. Brown, member of the public, to Morton W. Libarkin, NRC regarding ACRS Subcommittee review of Gulf States Utilities Company's application for an operating license for River Bend, dated September 5, 1985

BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER (Assigned by TIDC; add Vol. No., if any)

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Supplement No. 5

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River Bend Station

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1985

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Office of Nuclear Reactor Regulation
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11a. TYPE OF REPORT

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12. SUPPLEMENTARY NOTES

Pertains to Docket No. 50-458

13. ABSTRACT (200 words or less)

Supplement No. 5 to the Safety Evaluation Report for the application filed by Gulf States Utilities Company as applicant and for itself and Cajun Electric Power Cooperative, as owners, for a license to operate River Bend Station has been prepared by the Office of the Nuclear Reactor Regulation of the U. S. Nuclear Regulatory Commission. The facility is located in West Feliciana Parish, near St. Francisville, Louisiana.

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NUREG-0989, Supp. No. 5

SER RELATED TO THE OPERATION OF RIVER BEND STATION

NOVEMBER 1985