

October 2, 1992

Docket No. 50-458

Gulf States Utilities
ATTN: Mr. James C. Deddens
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Dear Mr. Deddens:

SUBJECT: RIVER BEND STATION, UNIT 1 - AMENDMENT NO. 65 TO FACILITY
OPERATING LICENSE NO. NPF-47 (TAC NO. M82826)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 65 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated February 5, 1992 (RBG-36465).

The amendment introduces a new surveillance requirement to technical specification 3.4.5.1 to periodically verify the minimum Automatic Depressurization System (ADS) accumulator air supply header pressure. The amendment reflects your commitment made during the enforcement conference of January 31, 1991 held at the NRC's Region IV office.

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

Sincerely,

Original Signed By

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

Enclosures:

1. Amendment No. 65 to NPF-47
2. Safety Evaluation

cc w/enclosures:

See next page

OFFICE	PDIV-2/LA	PDIV-2/PM	OGC <i>MW</i>	PDIV-2 <i>PA</i>	NRR/SRXB
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DATE	8/26/92	8/26/92	8/4/92	9/25/92	8/28/92

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Mr. James C. Deddens

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October 2, 1992

cc w/enclosures:

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

GULF STATES UTILITIES COMPANY

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 65
License No. NPF-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Gulf States Utilities Company (the licensee) dated February 5, 1992, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 65 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. GSU shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance to be implemented within 30 days of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: October 2, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 65

FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contains a vertical line indicating the area of change. The overleaf page is provided to maintain document completeness.

REMOVE

3/4 5-5
B 3/4 5-2
B 3/4 5-3

INSERT

3/4 5-5
B 3/4 5-2
B 3/4 5-3

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- e. At least once per 18 months for the ADS by:
 - 1. Performing a system functional test which includes simulated automatic actuation of the system throughout its emergency operating sequence, but excluding actual valve actuation.
 - 2. Manually opening each ADS valve when the reactor steam dome pressure is greater than or equal to 100 psig* and observing that:
 - a) The control valve or bypass valve position responds accordingly, or
 - b) There is a corresponding change in the measured steam flow, or
 - c) The acoustic monitoring system indicates the valve is open.

- f. At least once per 12 hours for the Division I and II ADS air supply systems, by verifying the associated ADS accumulator air supply header pressure is greater than or equal to the required minimum pressure of 131 psig.

*The provisions of Specification 4.0.4 are not applicable provided the surveillance is performed within 12 hours after reactor steam pressure is adequate to perform the test.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

3.5.2 At least two of the following shall be OPERABLE:

- a. The low-pressure core spray (LPCS) system with a flow path capable of taking suction from the suppression pool and transferring the water through the spray sparger to the reactor vessel.
- b. Low-pressure coolant injection (LPCI) subsystem "A" of the RHR system with a flow path capable of taking suction from the suppression pool and transferring the water to the reactor vessel.
- c. Low-pressure coolant injection (LPCI) subsystem "B" of the RHR system with a flow path capable of taking suction from the suppression pool and transferring the water to the reactor vessel.
- d. Low-pressure coolant injection (LPCI) subsystem "C" of the RHR system with a flow path capable of taking suction from the suppression pool and transferring the water to the reactor vessel.
- e. The high-pressure core spray (HPCS) system with a flow path capable of taking suction from the condensate storage tank or suppression pool, as applicable, when these sources of water are OPERABLE per Specification 3.5.3.b, and transferring the water through the spray sparger to the reactor vessel.

APPLICABILITY: OPERATIONAL CONDITION 4 and 5*.

ACTION:

- a. With one of the above required subsystems/systems inoperable, restore at least two subsystems/systems to OPERABLE status within 4 hours or suspend all operations that have a potential for draining the reactor vessel.
- b. With both of the above required subsystems/systems inoperable, suspend CORE ALTERATIONS and all operations that have a potential for draining the reactor vessel. Restore at least one subsystem/ system to OPERABLE status within 4 hours or establish PRIMARY CONTAINMENT INTEGRITY - FUEL HANDLING within the next 8 hours.

*The ECCS is not required to be OPERABLE provided that the reactor vessel head is removed, the cavity is flooded, the upper containment fuel pool gate is opened, and water level is maintained within the limits of Specifications 3.9.8 and 3.9.9.

BASES

3/4.5.1 and 3/4.5.2 ECCS - OPERATING and SHUTDOWN

ECCS division I consists of the low-pressure core spray system and low-pressure coolant injection subsystem "A" of the RHR system and the automatic depressurization system (ADS) as actuated by ADS trip system "A". ECCS division II consists of low-pressure coolant injection subsystems "B" and "C" of the RHR system and the automatic depressurization system as actuated by ADS trip system "B".

The low-pressure core spray (LPCS) system is provided to assure that the core is adequately cooled following a loss-of-coolant accident and, together with the LPCI system, provides adequate core cooling capacity for all break sizes up to and including the double-ended reactor recirculation line break, and for smaller breaks following depressurization by the ADS.

The LPCS is a primary source of emergency core cooling after the reactor vessel is depressurized and a source for flooding of the core in case of accidental draining.

The surveillance requirements provide adequate assurance that the LPCS system will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation, a complete functional test requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage to piping and to start cooling at the earliest moment.

The low-pressure coolant injection (LPCI) mode of the RHR system is provided to assure that the core is adequately cooled following a loss-of-coolant accident. The LPCI system, together with the LPCS system, provides adequate core flooding for all break sizes up to and including the double-ended reactor recirculation line break, and for small breaks following depressurization by the ADS.

The surveillance requirements provide adequate assurance that the LPCI system will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation, a complete functional test requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage to piping and to start cooling at the earliest moment.

ECCS division III consists of the high-pressure core spray system. The high-pressure core spray (HPCS) system is provided to assure that the reactor core is adequately cooled to limit fuel clad temperature in the event of a small break in the reactor coolant system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCS system permits the reactor to be shut down while maintaining sufficient reactor vessel water inventory until the vessel is depressurized. The HPCS system operates over a range of 0 to 1177 psi differential pressure between reactor vessel and HPCS suction source.

3/4.5 EMERGENCY CORE COOLING SYSTEM

BASES

ECCS - OPERATING and SHUTDOWN (Continued)

The capacity of the HPCS system is selected to provide the required core cooling. The HPCS pump is designed to deliver greater than or equal to 467/1400/5010 gpm at differential pressures of 1177/1147/200 psid. Initially, water from the condensate storage tank is used instead of injecting water from the suppression pool into the reactor, but no credit is taken in the safety analyses for the condensate storage tank water.

With the HPCS system inoperable, adequate core cooling is assured by the OPERABILITY of the redundant and diversified automatic depressurization system and both the LPCS and LPCI systems. In addition, the reactor core isolation cooling (RCIC) system will automatically provide makeup, at reactor operating pressures, on a reactor low water level condition. The HPCS out-of-service period of 14 days is based on the demonstrated OPERABILITY of redundant and diversified low pressure core cooling systems.

The surveillance requirements provide adequate assurance that the HPCS system will be OPERABLE when required. Although all active components are testable and full flow can be demonstrated by recirculation through a test loop during reactor operation, a complete functional test with reactor vessel injection requires reactor shutdown. The pump discharge piping is maintained full to prevent water hammer damage and to provide cooling at the earliest moment.

Upon failure of the HPCS system to function properly after a small break loss-of-coolant accident, the automatic depressurization system (ADS) automatically causes selected safety/relief valves to open, depressurizing the reactor so that flow from the low pressure core cooling systems can enter the core in time to limit fuel cladding temperature to less than 2200°F. ADS is conservatively required to be OPERABLE whenever reactor vessel pressure exceeds 100 psig. This pressure is substantially below that for which the low pressure core cooling systems can provide adequate core cooling for events requiring ADS.

ADS automatically controls seven selected safety/relief valves although the safety analysis only takes credit for six valves. It is therefore appropriate to permit one valve to be out-of-service for up to 14 days without materially reducing system reliability.

During normal plant operations, ADS and non-ADS safety/relief valve (SRV) accumulator pressure is maintained by the non-safety related SVV compressors. Post-accident air pressure for SRV actuation is supplied by the safety-related Penetration Valve Leakage Control System (PVLCS) compressors. Since PVLCS compressors are not loaded on to the safety-related, divisional electrical buses until 10-20 minutes after the start of an accident, the pneumatic force for any ADS SRV actuations required during the initial stage of an accident must be provided by ADS accumulator air pressure.

3/4.5 EMERGENCY CORE COOLING SYSTEM

BASES

ECCS - OPERATING and SHUTDOWN (Continued)

The required minimum ADS accumulator air supply header pressure must be greater than or equal to 131 psig during normal plant operations to ensure that the design and licensing basis requirements are satisfied (2 ADS actuations with drywell pressure at 70% of drywell design pressure or 4-5 actuations at atmospheric pressure without makeup air). Long-term, post-accident operability of ADS is assured with the PVLCS supplying air at a pressure greater than or equal to 101 psig.

Pressure indication and low pressure alarm channels are provided in the Main Control Room for both divisional ADS SRV accumulator air supply headers.

3/4.5.3 SUPPRESSION POOL

The suppression pool is required to be OPERABLE as part of the ECCS to ensure that a sufficient supply of water is available to the HPCS, LPCS and LPCI systems in the event of a LOCA. This limit on suppression pool minimum water volume ensures that sufficient water is available to permit recirculation cooling flow to the core. The OPERABILITY of the suppression pool in OPERATIONAL CONDITIONS 2 or 3 is required by Specification 3.6.3.1.

Repair work might require making the suppression pool inoperable. This specification will permit those repairs to be made and at the same time give assurance that the irradiated fuel has an adequate cooling water supply when the suppression pool must be made inoperable, including draining, in OPERATIONAL CONDITION 4 or 5.

In OPERATIONAL CONDITIONS 4 and 5 the suppression pool minimum required water volume is reduced because the reactor coolant is maintained at or below 200°F. Since pressure suppression is not required below 212°F, the minimum required water volume is based on NPSH, recirculation volume, vortex prevention, and a 2' 6" safety margin for conservatism.

The suppression pool pumpback system (SPPS) is a subsystem designed to ensure suppression pool level; therefore the OPERABILITY of the Suppression Pool can be maintained in the event of a passive ECCS failure. The ECCS piping components which may experience passive failures will not result in flooding of the ECCS equipment cubicles because the rooms are located in watertight cubicles. The system design basis is for a maximum unisolatable leak into the auxiliary building crescent room of 50 gpm. Each of the manually operated SPPS subsystems consists of two crescent room sumps each with two 100% capacity pumps. In the event one subsystem becomes inoperable, a functional test of the operable subsystem is performed in lieu of a full (92 day) surveillance test because of the difficulty in performing the full test and the pumps are used in normal plant operation. This will provide the plant staff additional awareness of the systems condition.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 65 TO FACILITY OPERATING LICENSE NO. NPF-47
GULF STATES UTILITIES COMPANY
RIVER BEND STATION, UNIT 1
DOCKET NO. 50-458

1.0 INTRODUCTION

The automatic depressurization system (ADS) is a safety related system used to depressurize the primary system in the event of a small loss-of-coolant accident (LOCA) combined with the failure of the high pressure core spray system. Depressurization of the primary system by opening 7 of the 16 safety relief valves (SRVs) permits injection by either the low pressure core spray system or the low pressure coolant injection system.

Each SRV is a spring loaded valve capable of being operated by either an externally attached pneumatic operating cylinder or by direct steam pressure in opposition to spring compression. The normal air supply for the SRVs is from the non-safety main steam system air compressors. These compressors supply air at approximately 17 SCFM at 175 psig. In addition, the seven SRVs that provide the ADS function have a safety related accumulator and check valve to ensure the ability to hold the valve open if the air compressors are lost. Following a LOCA, it is assumed that off-site power will be unavailable which would result in the loss of the air compressors to the SRVs. Long-term operation of the SRVs will rely on the safety-related penetration valve leakage control system (PVLCS). However, the PVLCS is manually loaded on the diesel generators and availability, as discussed in the staff's Safety Evaluation Report (NUREG-0989), is not assumed until 25 minutes after the LOCA. Therefore, short-term pneumatic operation of the ADS SRVs is dependent on the SRV accumulators.

On January 31, 1991, an enforcement conference was held in the Region IV Office regarding the reported inoperability of the ADS which was caused by the inoperability of the normal supply air compressors. Specifically, on January 4, 1991 with the facility operating in Mode 1, the licensee declared the ADS inoperable because of the indeterminate status of the capability of the ADS SRVs to meet their design basis functions due to apparent inadequate air pressure in the SRV accumulators. The apparent inoperability existed for approximately 27 hours, which exceeded the technical specification limit of 12 hours. However, based on further analysis, it was determined that sufficient air pressure remained in the SRV accumulators such that the ADS remained operable and would have been capable of performing its intended function. During the enforcement conference, the licensee committed to submit a technical specification change to define the operability requirements of the ADS SRVs.

In fulfilling the above commitment, the licensee's letter of February 5, 1992 requested an amendment to Facility Operating License No. NPF-47. The proposed amendment would add a surveillance requirement to technical specification 3/4.5.1, "Emergency Core Cooling Systems - Operating," to verify a minimum SRV accumulator pressure of 131 psig once every 12 hours.

2.0 EVALUATION

The Standard Review Plan (NUREG-0800) does not recommend specific requirements for the ADS SRV accumulator size or pressure. General Electric design specifications list the minimum operating pressure for the ADS SRV air supply as 150 psig. In addition, these design specifications state that for the ADS function, 50 gallons of accumulator volume for each ADS valve is required to provide two actuations with the drywell at 70 percent of drywell design pressure. While only one actuation of the ADS would be sufficient to perform its intended function, two actuations provide for additional margin.

In the River Bend Final Safety Analysis Report, the licensee stated that the accumulators were 60-gallon capacity and designed to provide two actuations of the ADS at 70 percent of drywell design pressure, which is equivalent to four to five actuations at atmospheric pressure. The staff accepted these values and included them in the Safety Evaluation Report. Therefore, this has become the regulatory basis for sizing the SRV accumulators.

The River Bend accumulators provide an actual pressurized volume of 66 gallons (including the piping volume between the accumulator and the air valve on the SRV actuator). With a larger volume than that specified by General Electric, accumulator pressure could be less than 150 psig and still be capable of meeting the FSAR commitments. Engineering calculations performed by the licensee determined that a minimum accumulator pressure of 126.3 psig would be necessary to provide for two actuations at 70 percent drywell design pressure. Similarly, a minimum accumulator pressure of 130.4 psig would be necessary to provide for four actuations with the drywell at atmospheric pressure. Based on this information, the licensee determined that verification of a minimum SRV accumulator pressure of 131 psig would be sufficient to demonstrate operability. Pressure indication and low pressure alarm channels are provided in the Main Control Room for both ADS SRV accumulator air supply headers.

The staff has reviewed the licensee's submittal and has concluded that a minimum SRV accumulator pressure of 131 psig will satisfy the licensing requirements for safe operation. Control Room indication and alarms are available to alert plant operators if pressure falls to unacceptable levels. Based on our review, we conclude that the proposed change to require periodic verification of the SRV accumulator pressure is acceptable and that the licensee has met the commitment made in the January 31, 1991 enforcement conference previously discussed.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (57 FR 9444). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Douglas Pickett

Date: October 2, 1992