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JOHN R. McGAHA, JR.
Vice President
Operations

March 15, 1994

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: River Bend Station - Unit 1
Docket No. 50-458
License No. NPF-47
Proposed Amendment to the Technical Specifications
Turbine Overspeed Protection System (LAR 93-12)
File No.: G9.5, G9.42

RBG- 40366
RBEXEC-94-069

Gentlemen:

Entergy Operations, Inc. (EOI) hereby files an application to amend the River Bend Station - Unit 1 Technical Specifications, Appendix A to Facility Operating License NPF-47, pursuant to 10CFR50.90. This application is filed to revise the Technical Specifications to remove the "Turbine Overspeed Protection System" requirements. The removal of these requirements from the Technical Specifications and subsequent relocation of these requirements to plant procedures is a line item improvement of Technical Specifications that has been identified by the industry and the Nuclear Regulatory Commission.

Attachment 1 to this letter provides the justification for this proposed revision to the Technical Specification and Bases pages shown in Attachment 3. Attachment 2 to this letter provides the discussion of the no significant hazards consideration.

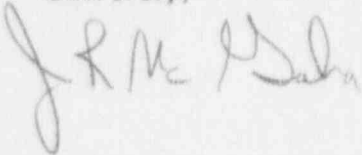
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ADD 1

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Page 2 of 2

If you have any questions or comments, please contact Mr. Otto P. Bulich of my staff at (504) 336-6251.

Sincerely,



Attachments

xc: U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

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

Mr. Edward T. Baker
U.S. Nuclear Regulatory Commission
M/S OWFN 13-H-15
Washington, D.C. 20555

Department of Environmental Quality
Radiation Protection Division
P.O. Box 82135
Baton Rouge, LA 70884-2135
Attn: Administrator

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

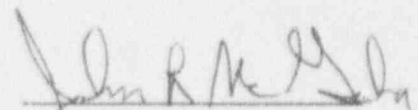
LICENSE NO. NPF-47

DOCKET NO. 50-458

IN THE MATTER OF
GULF STATES UTILITIES COMPANY
CAJUN ELECTRIC POWER COOPERATIVE AND
ENERGY OPERATIONS, INC.

AFFIRMATION

I, John R. McGaha, being duly sworn, state that I am the Vice President-Operations of Entergy Operations, Inc., at River Bend Station; that on behalf of Entergy Operations, Inc. I am authorized to sign and file with the Nuclear Regulatory Commission this letter requesting the removal of the turbine overspeed protection system requirements from the River Bend Station Technical Specifications; that I signed this as Vice President Operations at River Bend Station of Entergy Operations, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information, and belief.




John R. McGaha

STATE OF LOUISIANA
WEST CALICIANA PARISH

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the Parish and State above named, this 15th day of March, 1994.

(SEAL)



Notary Public

ATTACHMENT 1

**ENTERGY OPERATIONS, INC.
RIVER BEND STATION
DOCKET 50-458/LICENSE NO. NPF-47**

**TURBINE OVERSPEED PROTECTION SYSTEM
(LAR 93-12)**

DOCUMENT INVOLVED:

Technical Specifications

ITEMS:

3/4.3.8 and Bases

REASON FOR REQUEST:

In accordance with 10CFR50.90, Entergy Operations, Inc. requests a revision to the River Bend Station (RBS) - Unit 1 Technical Specifications, Appendix A to Facility Operating License NPF-47. This change request proposes deletion of Technical Specification (TS) 3/4.3.8, "Turbine Overspeed Protection System." The proposed deletion of this specification is based on the low probability of the generation of a damaging turbine missile and other existing performance verifications of the overspeed protection system. The requirements associated with this specification are proposed to be relocated to the RBS Technical Requirements Manual.

DESCRIPTION OF PROPOSED CHANGES:

River Bend Station is equipped with several valves which control turbine speed during normal plant operations and protect it from overspeed during abnormal conditions. These valves are the high pressure turbine control valves, the high pressure turbine stop valves, the low pressure turbine intermediate stop valves, and the low pressure turbine intercept valves. Currently, the subject RBS TS provides certain operability and surveillance requirements for the turbine overspeed protection instrumentation and the turbine speed control valves relative to their overspeed protection function. The intent of this specification is to ensure the adequate operability of this system for the purpose of overspeed protection.

The purpose of overspeed protection is to minimize the possible generation of turbine fragment missiles. Excessive overspeed could potentially result in the generation of missiles which could impact and damage safety related components, equipment or structures, depending on the size and trajectory of the missiles.

The turbine-generator orientation at RBS is a "favorable" orientation for reducing the probability of damage to safety-related equipment from turbine missiles since all safety-related components and structures are located in the axial direction from the turbine-generator. Updated Safety Analysis Report (USAR) Section 3.5.1.3 provides an analysis of the probability of turbine missile damage to safety-related components. This analysis considered turbine placement and orientation and the potential generation of low-trajectory and high-trajectory missiles. The probability of turbine missile damage was based on the probabilities of missile generation, of a missile striking a critical plant region, and of a missile strike damaging its target in a manner leading to unacceptable consequences. The probability of damage to safety-related equipment based on the turbine manufacturer's (General Electric) turbine failure data was calculated to be 1.473×10^{-8} per year. The probability of damage to safety-related equipment based on the turbine failure data recommended by the NRC in NUREG-0800, "Standard Review Plan," was stated to be 4.75×10^{-7} per year.

The probability results based on the turbine manufacturer's data is less than the NRC acceptable risk rate of less than 10^{-7} per year for the loss of an essential system from a single unit. The probability results based on the NRC's data slightly exceeds the acceptable risk rate. However, NUREG-0800, Section 2.2.3, provides for an acceptable risk rate of approximately 10^{-6} per year provided that, when combined with reasonable qualitative arguments, the realistic probability can be shown to be lower. A discussion of these arguments and the conservatism of the NRC's data is provided in USAR Section 3.5.1.3.4.4. A summary of these arguments is as follows:

- a. The overall risk estimate included low-trajectory missiles as well as high-trajectory missiles and included missiles from design overspeed failures as well as destructive overspeed failures.
- b. The turbine failure rate of 10^{-4} per turbine year used in the NRC model was derived from observed turbine failures prior to 1956. Since this time, with the improvements in turbine design, preservice and inservice inspections, quality control, and the use of materials of higher fracture toughness, the turbine failure rate is expected to be significantly less than the 10^{-4} per turbine year value suggested by the NRC.
- c. The entire front surfaces and roof areas of all buildings containing the essential systems, rather than the actual areas occupied by the essential systems, were used in the NRC model.
- d. The NRC model assumed every missile penetrated the concrete wall or roof, strikes an essential system and results in unacceptable damage.

Therefore, the realistic probability of turbine missile damage is acceptably low. The transient due to the actuation of the turbine stop valves (in response to a turbine overspeed event) should also be considered. For this event, the closure of the turbine stop valves initiates the design basis transient (in this case load rejection) and not the turbine overspeed itself. The overspeed protection system does not perform a subsequent function to mitigate the effects of the transient.

The Turbine Overspeed Protection System Technical Specification does not meet the criteria described by the NRC Interim Policy Statement on Technical Specification Improvements and may be relocated to procedures in accordance with NEDO-31466, "Technical Specification Screening Criteria Application and Risk Assessment," dated November 1987. This is supported by a letter submittal to the NRC of the RBS (plant specific) Improved Technical Specifications (NUREG-1434) dated November 30, 1993 (RBG-39478).

The proposed change to delete Specification 3/4.3.8 would not relieve RBS of its commitments to inspect and test the turbine overspeed protection system based upon manufacturer's recommendations and calculations of missile generation probabilities (USAR Section 10.2.3.6). The operability and surveillance requirements will be relocated to the RBS Technical Requirements Manual (TRM). The TRM is being established for the purpose of relocating TS requirements which are identified through various line item improvements. As proposed in a letter dated January 14, 1994, for LAR 91-11 (RBG-39894), the information being relocated to the TRM is controlled and subsequent changes reviewed in accordance with the change control program described in Specification 6.5.2.

The similar change request was approved by the NRC on October 9, 1991, for the Clinton Power Station (Amendment 60 to Facility Operating License Number NPF-62). River Bend Station is requesting this change prior to the implementation of the Improved Technical Specifications based upon the schedule discussions provided below.

REVISED TECHNICAL SPECIFICATION:

The requested revisions are provided in Attachment 3.

REVISED TECHNICAL SPECIFICATION BASES:

A markup of the Bases is provided in Attachment 3. A change to the Bases is not a change to the Technical Specifications as denoted in 10CFR50.36 and is provided for information only.

SCHEDULE FOR ATTAINING COMPLIANCE:

River Bend Station is currently in compliance with this Specification. The proposed change is being requested prior to the implementation of the Improved Technical Specifications due to planned modifications to the turbine rotors during the next refueling outage (RF5). The modification will replace the existing shrunk-on design rotors (built-up rotor construction typically used for nuclear turbine low-pressure rotors in the 1960s and 1970s) with integral (monoblock) rotors. With the design change implemented, the turbine manufacturer (General Electric) has recommended that the on-line functional testing of the nuclear turbine primary steam system valves be extended. The implementation of this TS change request will allow RBS to adhere to testing recommendations by the manufacturer via the Technical Review and Control process described in Specification 6.5.2. The implementation of this TS change request is expected to (1) reduce the risk of a plant trip due to unnecessary testing and (2) prevent unnecessary cycling of the reactor due to reducing reactor power during testing. Additionally, the implementation of this TS change request is expected to provide a cost savings estimated at \$650,000 per cycle based upon the implementation of manufacturer recommendations once the rotor modifications are complete. The changes to the license will be implemented within 60 days after receiving the approved amendment for this proposed change request and the approved amendment for LAR 91-11 (RBG-39894, dated January 14, 1994).

NOTIFICATION OF STATE PERSONNEL:

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

ENVIRONMENTAL IMPACT APPRAISAL

Entergy Operations, Inc. (EOI) has reviewed the proposed license amendment request against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Thus, EOI concludes that the proposed change meets the criteria given in 10CFR51.22(c)(9) for a categorical exclusion from the requirement for an Environmental Impact Statement.

ATTACHMENT 2

NO SIGNIFICANT HAZARDS CONSIDERATION

Entergy Operations, Inc. has evaluated this proposed Technical Specification change and has determined that it involves no significant hazards consideration. This determination has been performed in accordance with 10CFR50.92. The following evaluation is provided for the three categories of the significant hazards considerations standards:

- I. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

This change request proposes deletion of Technical Specification 3/4.3.8, "Turbine Overspeed Protection System" and relocates this requirement to an existing plant program. The purpose of overspeed protection is to minimize the possible generation of turbine fragment missiles. Excessive overspeed could potentially result in the generation of missiles which could impact and damage safety related components, equipment or structures, depending on the size and trajectory of the missiles. The proposed deletion of this specification is based on the low probability of the generation of a damaging turbine missile and other existing performance verifications of the overspeed protection system.

The turbine-generator orientation at RBS is a "favorable" orientation for reducing the probability of damage to safety-related equipment from turbine missiles since all safety-related components and structures are located in the axial direction from the turbine-generator. Turbine Overspeed Protection System is necessary for protection of the turbine from only an operational and economic point of view. The system is not essential to mitigating the consequences of an accident. The system is not used in an initial condition of a design basis accident or transient analysis. The probability of damage to safety-related equipment based on turbine manufacturer's turbine failure data was calculated to be 1.473×10^{-8} per year and is acceptably low based on the probability of turbine failure data of 4.75×10^{-7} per year as recommended by NUREG-0800. Therefore, this proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

- II. Does the change create the possibility of a new or different kind of accident

from any accident previously evaluated?

The change proposes to relocate this requirement to an existing plant program, whereby adequate control of information is maintained. The proposed change does not necessitate a physical alteration of the plant (no new or different type of equipment will be installed) or changes to parameters governing normal plant operation. The proposed change will not impose any different operational or surveillance requirements. No new failure modes are introduced. Therefore, this proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

III. Does the change involve a significant reduction in a margin of safety?

The proposed change will not reduce a margin of safety because it has no impact on any safety analysis assumption. The proposed change does not alter the scope of equipment currently required to be OPERABLE or subject to surveillance testing, nor does the proposed change affect any instrument setpoints or equipment safety functions. The favorable orientation of the turbine provides a margin of safety such that the possibility of missile damage to safety-related equipment is acceptably low. Therefore, the change does not involve a significant reduction in a margin of safety.

Based on the above, it is concluded that the proposed change does not (1) involve a significant increase in the probability or consequences of a an accident previously evaluated, (2) create the probability of a new or different kind of accident from any accident previously evaluated, or (3) involve a significant reduction in a margin of safety and therefore, does not involve a significant hazard consideration.