January 13, 2000

Mr. Randall K. Edington
Vice President - Operations
Entergy Operations, Inc.
River Bend Station
P. O. Box 220
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: HEAVY LOAD EXCEPTION TO ALLOW MOVEMENT OF SPENT FUEL POOL GATES TO REPLACE GATE SEAL (TAC NO. MA7365)

Dear Mr. Edington:

The Commission has issued the enclosed Amendment No. 108 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1 (RBS). The amendment approves changes to the RBS Technical Requirements Manual (TRM) in response to your application dated December 16, 1999, as supplemented by your letters dated December 21, 1999, and January 10, 2000.

The amendment authorizes a revision to RBS TRM, Section TR 3.9.14, to add a temporary exception to the current prohibition for travel of loads in excess of 1200 pounds over fuel assemblies in the spent fuel storage pool. The exception allows the movement of watertight gates, which separate the spent fuel pool from the cask and lower transfer pools, in order to perform repairs to the gates and replacement of watertight seals prior to the end of your upcoming Refueling Outage 9. Corresponding sections of the RBS Updated Safety Analysis Report (USAR) are also to be revised to be consistent with the exception.

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

Sincerely,

/RA/

Robert J. Fretz, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 108 to NPF-47
2. Safety Evaluation

cc w/encls: See next page

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ENTERGY GULF STATES, INC. **

AND

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

RIVER BEND STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 108
License No. NPF-47

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

   A. The application for amendment by Entergy Gulf States, Inc.* (the licensee) dated December 16, 1999, as supplemented by your letters dated December 21, 1999, and January 10, 2000, 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

---

* Entergy Operations, Inc. is authorized to act as agent for Entergy Gulf States, Inc, and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

**Entergy Gulf States, Inc., has merged with a wholly owned subsidiary of Entergy Corporation. Entergy Gulf States, Inc. was the surviving company in the merger.

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, by Amendment No. 108, the license is amended to authorize revision of the Updated Safety Analysis Report (USAR) and Technical Requirements Manual (TRM) as set forth in the application for amendment by Entergy Operations, Inc., dated December 16, 1999, as supplemented by letters dated December 21, 1999, and January 10, 2000. Entergy Operations, Inc. shall update the USAR and TRM to reflect the revised licensing basis authorized by this amendment in accordance with 10 CFR 50.71(e).

3. The license amendment is effective as of its date of issuance and shall be implemented in the next periodic update to the USAR and TRM in accordance with 10 CFR 50.71(e). Implementation of the amendment is the incorporation into the USAR and TRM update, the changes to the description of the facility as described in the licensee's application dated December 16, 1999, as supplemented by letters dated December 21, 1999, and January 10, 2000, and evaluated in the staff's Safety Evaluation attached to this amendment.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, Chief, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Date of Issuance: January 13, 2000

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 108TO FACILITY OPERATING LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

By application dated December 16, 1999, as supplemented by letters dated December 21, 1999, and January 10, 2000, Entergy Operations, Inc. (the licensee) requested changes to Facility Operating License (FOL) No. NPF-47 for the River Bend Station, Unit 1 (RBS). The proposed changes would revise the RBS Technical Requirements Manual (TRM), Section TR 3.9.14, and add an exception to the current prohibition for travel of loads in excess of 1200 pounds over fuel assemblies in the spent fuel storage pool. This exception would allow the licensee to move the spent fuel pool (SFP) watertight gates, which separate the SFP from the cask and lower transfer pools, to perform maintenance and repairs on the gates and watertight seals through the end of Refueling Outage 9 (RF-9). Updated Safety Analysis Report (USAR) Sections 9.1.2.2.2 and 9.1.2.3.3 would also to be changed to reflect the proposed exception. The licensee had determined that the load of the gate and rigging exceeds the load analyzed over spent fuel (1200 pounds) and further concluded that the requested change involved an unreviewed safety question in accordance with Title 10 of the *Code of Federal Regulations*, Part 50.59 (10 CFR 50.59), and the guidance in Nuclear Regulatory Commission (NRC) Bulletin 96-02, “Movement of Heavy Loads over Spent Fuel, over Fuel in the Reactor Core, or over Safety-Related Equipment,” issued April 11, 1996.

The licensee submitted its application following the rupture of the lower inclined fuel transfer system (IFTS) pool gate seal which occurred on November 24, 1999. The lower transfer pool had been drained for scheduled maintenance that was being performed in preparation for RF-9. The licensee had requested that the NRC approve this license amendment request prior to January 10, 2000, in accordance with 10 CFR 50.91(a) which allows, in certain circumstances, approval of changes to the FOL prior to the expiration of the 30-day public comment period if the Commission finds that exigent circumstances exist, in that a licensee and the Commission must act quickly and that time does not permit the Commission to publish a *Federal Register* notice allowing 30 days for prior public comment, and it also determines that the amendment involves no significant hazards considerations.

Justification for the exigent circumstances was provided by the licensee in its original application, and additional information concerning this matter was provided in a letter dated December 21, 1999. In addition, the licensee requested approval on a temporary basis in its letter dated January 10, 2000. This information was within the scope of the original *Federal Register* notice, and did not change the staff’s proposed no significant hazards consideration determination.

2.0 BACKGROUND

RBS USAR Section 9.1.2.2.2, "Fuel Building Storage," provides a description of the SFP facilities and states that the "fuel storage facilities consist of three separate but interconnected stainless steel-lined concrete pools. The spent fuel storage pool is the largest of these pools. Adjacent to the fuel storage pool are the cask pool and the lower transfer pool. Each of these two pools is separated from the fuel storage pool by a full-height wall broken by a watertight gate. The watertight gates are normally open, but are closed to seal their respective pools during cask handling and equipment maintenance operations."

According to the licensee, the gates weigh approximately 1600 pounds each. When the weight of associated rigging used to remove the gates is considered, the total load would be approximately 2000 pounds. TRM Section TR 3.9.14 currently places the following restriction on heavy loads under TRM limiting condition for operation (TLCO) 3.9.14: "[l]oads in excess of 1200 pounds shall be prohibited from travel over fuel assemblies in the spent or new fuel storage, transfer or upper containment fuel pool racks, and all loads shall be prohibited from travel over irradiated fuel when water level is < 23′ over the irradiated fuel." As a result, the licensee is unable to remove the gates for maintenance and repairs.

NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," provides guidelines for licensees to assure safe handling of heavy loads by prohibiting load travel, to the extent practicable, over spent fuel assemblies, over the reactor core, and over safety-related equipment. The NUREG also recommends in Section 5.1.1 that procedures be developed to cover load handling operations for heavy loads that could be handled over or in proximity to irradiated fuel.

To enable proper movement of the lower pool gates over irradiated fuel in the SFP, the licensee proposed changing the existing TLCO 3.9.14 by adding an exception to the existing requirement to allow travel of the fuel pool gates for repair or seal replacement. The licensee would also change the descriptions in USAR Sections 9.1.2.2.2 and 9.1.2.3.3 to be consistent with the TRM change.

In addition, the licensee stated that it will implement specific administrative controls to accomplish the move by revising existing rigging and load handling procedures to assure the gates would not be dropped. The proposed changes would satisfy related guidelines in NUREG-0612 by enabling the licensee to transport the fuel pool gates over irradiated fuel stored in cells along the safe load path. The licensee also proposed other controls to avoid the possibility of a load drop accident: (1) limiting the lift height of the gates; (2) using two 15-ton rated capacity cranes to provide redundancy with an approximately 15:1 factor of safety in lieu of a single-failure-proof crane or, as an alternative to the use of one of the cranes, lifting lugs and associated lifting devices that conform to NUREG-0612, Section 5.1.6, "Single-Failure Proof Handling System,"; (3) additional crane operator training prior to the move; and (4) ensuring that the associated equipment will be inspected and checked prior to gate movement.

3.0 EVALUATION

3.1 Crane Hoisting System/Lifting Device

USAR Section 9.1.2.2.2, “Fuel Building Storage,” briefly discusses that the 15-ton fuel building bridge crane (FBBC) was originally used for the installation of the high-density spent fuel storage racks. USAR Section 9.1.4.1.2.2 further states that the FBBC includes the design requirements of American Welding Society D1.1, National Electric Code Article 610, National Electrical Manufacturers Association MG1-18.501 through MG1-18.518, and Crane Manufacturers Association of America Specification No. 70 as a Service Class B crane. In addition, the requirements of 29 CFR 17, Part 1910.179 and American National Standards Institute B30.2.0 are safety-related requirements and are also incorporated into the crane design. The FBBC is also designed as a seismic Category II crane. However, according to the licensee, the FBBC does not meet the single-failure proof criteria outlined in NUREG-0612, Section 5.1.6. Presently, it is only used to move light loads over stored spent fuel, and administrative controls are used to prevent the transport of heavy loads over stored spent fuel.

USAR Section 9.1.4.2.2.1, “Spent Fuel Cask Trolley,” describes the bridge crane arrangement for the spent fuel cask handling system located at the eastern end of the fuel building. The spent fuel cask trolley (SFCT) consists of a rated 125-ton main hoist, that is fixed laterally in the center of the trolley span, with an auxiliary bridge trolley that houses a rated 15-ton auxiliary hoist. The design of the SFCT meets the same requirements as the FBBC; however, the SFCT is designed as a seismic Category I crane. As with the FBBC, the SFCT 15-ton auxiliary hoist does not meet the single-failure proof criteria outlined in NUREG-0612, Section 5.1.6.

3.2 Load Path

In its original application dated December 16, 1999, the licensee proposed two rigging schemes to remove the fuel pool gates. “Scheme 1" utilizes the FBBC and the SFCT auxiliary hoist, and “Scheme 2" incorporates a combination of structural steel lugs and the SFCT auxiliary hoist. The licensee provided the following descriptions concerning the proposed rigging configurations:

3.2.1 Scheme 1 (Using Two Cranes)

Description:

1. Each of the two spent fuel pool gates (FNS-GATE1 – IFTS Pool, FNS-GATE2 – cask pool, weighing 1600 pounds each, excluding the weight of associated rigging equipment) will be lifted using two cranes: the Fuel Building Bridge Crane (rated capacity 15 tons), and the Spent Fuel Cask Crane (rated capacity: auxiliary hook 15 tons, main hook 125 tons). Neither of the two cranes can be brought directly over the spent fuel gates. Based on a dry run of the cranes, the closest the Bridge Crane hook can be brought to the spent fuel gates is approximately 3′-2″ and the closest the auxiliary hook of the spent fuel cask crane can be brought to the spent fuel gate is approximately 6′-0″. Therefore, the horizontal distance between the two hooks will be approximately 9′-2″.

2. Pool gate FNS-GATE1 will be rigged first. Initially, the gate will be lifted by connecting the top of the sling from the gate to slings from hooks of both the cranes (Bridge Crane and auxiliary hook of the cask crane) so that the gate remains in approximately the same location horizontally relative to the spent fuel pool east wall. The gate load will be distributed to both hooks. (Note that the initial lifting force required is approximately 3700 pounds to overcome the friction of the hinges; however, once the gate is lifted from the hinges, the load is the weight of the gate and the rigging.) In this lifted position, the gate will be approximately 12″ to 24″ above its installed position and 4′-8 ½″ to 5′-8 ½″ above the top of the spent fuel racks, which are at elevation 84′-7 ½″. Reference USAR Figure 9.1-7 for a view of the configuration.

3. The gate will then be moved in north direction (approximately 7′) parallel to the east wall of the spent fuel pool by moving both the cranes until it reaches the opening for gate FNS-GATE2.

4. The gate will be rotated enough to be able to move through the cask pool gate opening. The gate will then be moved under the auxiliary hook of the cask crane by gradually slacking the Bridge Crane hook and at the same time raising the auxiliary hook of the Cask Crane. At this position the full load of the gate will be carried by the auxiliary hook of the Cask Crane.

5. The auxiliary hook of the Cask Crane will then be moved to the center of the cask pool.

6. The auxiliary hook of the Cask Crane will then be moved to the laydown area of the gate, raising the gate to clear the 113′ floor by 6″ to 12″.

7. Pool gate FNS-GATE2 will be rigged in a similar manner.

8. The reinstallation of these gates will follow the above sequence in reverse order.

3.2.2 Scheme 2 (Combination of Structural Steel Lugs and Using the Cask Crane)

Description:

SFP gates FNS-GATE1 (and FNS-GATE2 when required) will be lifted using a combination of chain hoists supported by lifting lugs attached to an overhead structural steel girder and the auxiliary hook of the Cask Crane. A temporary scaffold will be erected under the girder to attach the lugs to the girder and to attach/remove the lifting chains. The design of the lifting lugs and associated lifting devices (chains, slings, shackles, hoists, etc.) will conform to the guidelines of NUREG-0612, Section 5.1.6, “Single-Failure Proof Handling System.” The Auxiliary hook of the Cask Crane has a rated capacity of 15 tons. The sequence of the lift will be as follows:

1. Permanent steel lugs will be attached to overhead structural steel girder (supporting Floor at elevation 148′) over the centerlines of each of the wall openings for gates FNS-GATE1 and FNS-GATE2. The lugs will conform to Seismic Category 1

requirements. The design will provide a minimum factor of safety of 10 at ultimate strength.

2. The Auxiliary hook of the Cask Crane will be moved to its maximum westward position and then moved (approximately 7′) in a north direction until it is at the center line of the cask pool wall opening for FNS-GATE2. In this position, the auxiliary hook of the cask crane over the cask pool will be approximately 6′-6″ east of the pool gates.

3. Using the overhead lug described in Item 1 to attach a hoist, the FNS-GATE1 will be lifted sufficient to clear the gate hinges. A maximum lifting load of 3700 pounds will be allowed to account for the frictional forces to initially pull the gate off its hinges. In this lifted position, the gate will be approximately 12″ to 24″ above its installed position and 4′-8 ½″ to 5′-8 ½″ above the top of the spent fuel racks which is at elevation 84′-7 ½″.

4. With the help of another hoist attached to the lug over the opening for FNS-GATE2 and attaching the hoist hook to the shackle at the top of the gate, the gate will be moved northward until it is at the opening for FNS-GATE2.

5. The gate will be rotated enough to be able to move eastward through the cask pool gate opening. By attaching the auxiliary hook of the Cask Crane to the shackle at the top of the gate, the gate will be moved eastward under the auxiliary hook of the cask crane.

6. The auxiliary hook of the Cask Crane will then be moved to the laydown area of the gate, raising the gate to clear the 113′ floor by 6″ to 12″.

7. Pool gate FNS-GATE2, when required, will be rigged in a similar manner. The reinstallation of these gates will follow the above sequence in reverse order.

The licensee has stated that implementation of the two proposed rigging schemes, including the appropriate load path, will be controlled by site procedures.

3.3 Load Handling Guidelines

NUREG-0612, Section 5, “Guidelines for Control of Heavy Loads,” describe, in general, the following alternative approaches to provide acceptable measures for controlling heavy loads:

(1) The crane and associated lifting devices should conform to the single-failure-proof guidelines of NUREG-0612, Section 5.1.6; OR

(2) The crane should possess mechanical stops and/or electrical interlocks to prevent movement of loads over spent fuel assemblies, safety-related equipment, etc.; OR

(3) The effects of load drops should be analyzed, in accordance with NUREG-0612, Appendix A, to show that damage to fuel assemblies, etc., will not occur.

3.3.1 *Load Handling Guideline Alternatives (1) and (2)*

The licensee stated in its submittal that the two cranes in the fuel building did not conform to the single-failure-proof guidelines of NUREG-0612. In addition, the alternative approach to provide mechanical stops and/or electrical interlocks would not apply to the licensee's requirement to move the fuel pool gates for the short distance over irradiated fuel in the SFP.

3.3.2 *Load Handling Accident Analysis*

Although heavy load analyses are not required in accordance with Generic Letter 85-11, "Completion of Phase II of 'Control Of Heavy Loads At Nuclear Power Plants' NUREG-0612," the licensee's submittal did address the possibility of an unplanned drop of a fuel pool gate on the cask pool floor. USAR Section 9.1.4.3, "Safety Evaluation, Fuel Handling System," describes the cask drop accident scenario. In this case, a fully loaded cask weighing 125 tons is dropped 6" from the main hoist, and assumes an impact that results in the most severe damage. The results of this analysis were found to be acceptable. Therefore, given the relatively insignificant weight of the fuel pool gate (1 ton), the results of the cask drop accident would be bounding for the cask pool. This analysis, however, would not apply to the movement of the gates in the SFP.

3.3.3 *Licensee's Proposed Load Handling Schemes*

In the first rigging scheme, the FBBC and the SFCT will be used to perform the gate lifting and movement. Both cranes have a rated capacity of 15 tons, and the maximum weight of the gate and associated rigging is approximately 1 ton. As a result, there is a minimum 15:1 factor of safety for lifting and moving the SFP gates. Although the FBBC and SFCT are not designed as single-failure proof cranes, rigging the fuel pool gates using the two cranes would provide sufficient redundancy and a factor of safety that would, based upon a qualitative analysis for a one-time basis, result in an extremely small likelihood that a load drop accident would occur. Consequently, the staff finds the use of rigging Scheme 1, on a temporary basis through the end of RF-9, to be acceptable.

In the second rigging scheme, the initial gate lift will be performed through the use of structural steel lugs that are permanently welded to the Fuel Building overhead structural steel girder located over the center lines of the wall openings for the two gates that separate the SFP from the IFTS and the cask pools. Once the gate is through the cask pool opening, the movement path will no longer be over irradiated spent fuel, and the SFCT auxiliary hoist will be used to lift the gate to the proposed laydown area on the 113′ level of the Fuel Building. As in the case of the first scheme, Scheme 2 provides sufficient redundancy and a factor of safety that would, on a one-time basis, result in an extremely small likelihood that a load drop accident would occur. Therefore, the staff also finds the use of rigging Scheme 2, on a temporary basis through the end of RF-9, to be acceptable.

3.4 TRM 3.9.14, "Crane Travel, Spent and New Fuel Storage, Transfer, and Upper Containment Fuel Pools"

In its original application, the licensee proposed to change existing TRM 3.9.14 requirements limiting loads in excess of 1200 pounds from travel over irradiated fuel assemblies in the SFP to exempt the fuel pool gates from this load limit. Since temporary approval is being granted at this time, the licensee's TLCO 3.9.14 should be modified (shown between the brackets "[ ]"), in lieu of the original proposed TLCO change, as follows:

> "TLCO 3.9.14 Loads in excess of 1200 pounds shall be prohibited from travel over fuel assemblies in the spent or new fuel storage, transfer or upper containment fuel pool racks, except for travel of fuel pool gates for repair or seal replacement [on a temporary basis prior to the end of Refueling Outage 9], and all loads shall be prohibited from travel over irradiated fuel when water level is < 23' over the irradiated fuel."

In addition, TRM Surveillance Requirement (TSR) 3.9.14.1, and USAR Sections 9.1.2.2.2 and 9.1.2.3.3, will be changed to reflect the same gate load exception. The licensee's original proposed changes shall be further modified to include the condition that the load exception is authorized on a temporary basis prior to the start of RF-9.

As stated in its amendment request, the licensee will employ administrative controls to (1) limit the load path, (2) restrict the height of the load, and (3) control the implementation of one of the two proposed rigging schemes to assure the load will not be accidently dropped. Exemption of the SFP gate from the TRM load limits with the incorporation of these administrative controls would enable the licensee to safely move the gates over irradiated fuel. Therefore, these changes are acceptable to the staff.

3.5 Staff Conclusions

Based on the preceding discussions, the staff finds that the aforementioned changes to the RBS TRM and USAR to allow the movement of the gates over irradiated fuel in the SFP on a temporary basis, in conjunction with the licensee's use of administrative controls, are acceptable to the staff. These changes will enable the licensee to move the gates for maintenance and repairs while preventing any damage to spent fuel and, therefore, are acceptable to the staff.

4.0 CHANGED CONDITIONS

The Commission's regulations, as stated in 10 CFR 50.91, provide special exceptions for the issuance of amendments when the usual 30-day public notice cannot be met. One type of special exception is "exigency" whereby a license amendment may be approved prior to the expiration of the 30-day public comment period, if the Commission finds that exigent circumstances exist, in that a licensee and the Commission must act quickly and that time does not permit the Commission to publish a *Federal Register*

notice allowing 30 days for prior public comment, and it also determines that the amendment involves no significant hazards considerations.

In its application dated December 16, 1999, the licensee requested that approval be granted by January 10, 2000, under exigent circumstances in accordance with 10 CFR 50.91(a). Initially, the NRC did not conclude that exigent conditions existed, and published a 30-day notice in the *Federal Register* on December 21, 1999 (64 FR 71511). On December 21, 1999, the licensee provided supplemental information to further justify its request for exigent approval, which did not affect the *Federal Register* notice. Based on its review of the December 16, and December 21, 1999, letters, the staff has now determined that exigent circumstances exist.

5.0 STATEMENT OF EXIGENT CIRCUMSTANCES

In the December 16, and December 21, 1999, letters, the licensee stated that RF-9 will begin on March 4, 2000. The licensee is concerned that the material condition of the IFTS controls, as a result of heavy use incurred during the previous refueling outage in April/May 1999, would adversely impact IFTS reliability and performance. Specifically, the licensee is concerned that the multiple redundant position switches, which are used to indicate the position of the fuel carrier, valves and upender, would be less reliable and cause significant delays during RF-9. As a result, the licensee planned to make a number of repairs and modifications to proximity limit switches and other IFTS controls. In addition, the licensee planned to repair a 1.5 gallon per minute (gpm) leak in the lower transfer tube gate valve. On November 24, 1999, with the transfer pool drained and preparatory (scaffolding) work in progress, the pool gate seal ruptured allowing water to fill the pool. Work was suspended in the area until the gate seal could be repaired.

Following its inspection of the damaged seal, the licensee evaluated three major options: (1) replacing the seal using an underwater diver, (2) repairing the pneumatic seal in-place using divers, and (3) removing the gate from the pool and replacing the seal. Due to the complexities involved in repairing or replacing the seal in-place using divers, including the potential for divers to receive significant occupational exposure to radiation (dose) while working in the SFP, the licensee concluded that its best course of action would be to remove the gate from the pool to replace the seal.

Upon further determination that an unreviewed safety question existed concerning removal of the gate from the pool, the licensee submitted a license amendment request on December 16, 1999. The staff considers that the time between discovery and preliminary inspection of the failed seal, evaluation of potential solutions without the need for a licensing action, and submittal of the amendment request was reasonable.

Detailed schedules provided in the December 21, 1999, letter, show IFTS work being completed on March 5, 2000, assuming that this work commences on January 11, 2000, and a normal work week is adopted. Outage-related fuel moves are scheduled to begin shortly after completion of this work following entry into Mode 4. In its justification for exigent approval, the licensee stated that it would need to accelerate its pre-outage schedule to accommodate other work, in addition to the IFTS maintenance, if approval

is not granted prior to January 10, 2000. However, the licensee further explained that its schedule could allow for approval as late as January 17, 2000 without adversely impacting fuel movement activities.

The licensee has maintained that the IFTS work will provide a number of challenges to plant personnel. The lower part of the transfer pool, where the proximity probe and gate valve work will occur, will be considered a confined space and be subject to the appropriate site procedures. Licensee personnel indicated that no more than two persons can effectively work in the area at one time. Therefore, other management options, such as providing additional personnel resources, would not be practical at compressing the pre-outage schedule. In addition, the licensee stated that other controls will be necessary in order to interface the repair work with scheduled fuel moves. Typically, all activities in close proximity to the SFP area are suspended or closely coordinated during new or spent fuel bundle movement operations.

The licensee also considered other alternatives, such as delaying the outage by approximately one week; however, the licensee stated that shifting the schedule at this point would cause power reserves on the grid to be the lowest in the system due to other planned plant outages.

Based upon its review, the staff finds that the schedule provided by the licensee is reasonable and that the licensee is taking appropriate measures to improve equipment reliability. The staff agrees that the most prudent action is for the licensee to remove the transfer pool gate and replace the defective seal according to its proposed schedule, as opposed to other alternatives that could be implemented if accelerated approval is not granted, such as (1) replacing the seal in-place, subjecting divers to working in close proximity to the top of the fuel storage racks and receiving unnecessary occupational dose; (2) not repairing the IFTS position indication switches and possibly operating the IFTS with a temporary alteration to bypass unreliable channels; and (3) continuing to use work-arounds to operate the IFTS with the 1.5 gpm lower gate valve leak. Consequently, the staff finds that exigent circumstances exist and that this situation was not a result of actions taken by the licensee.

6.0 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.

7.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

As required by 10 CFR 50.91(a), the licensee has provided its analysis of the issue of no significant hazards consideration, which is presented below:

1. Involved a significant increase in the probability or consequences of an accident previously evaluated.

The River Bend Station (RBS) fuel building fuel storage facilities consist of three separate but interconnected stainless steel-lined concrete pools. The spent fuel storage pool is the largest of these pools. Adjacent to the fuel storage pool are the cask pool and the lower inclined fuel transfer [system] (IFTS) pool. Each of these two pools is separated from the fuel storage pool by a full-height wall broken by a watertight gate. The watertight gates are normally open, but are closed to seal their respective pools during cask handling and equipment maintenance operations. It is necessary to lift the gate between the Spent fuel pool and the IFTS pool for seal replacement. The total weight of the gate including the rigging equipment is 2000 pounds. This lift is considered as a heavy load lift since it is higher than the current RBS analyzed light load limit of 1200 pounds for movement of loads over the Spent fuel pool. RBS TRM 3.9.14 prohibits any load in excess of 1200 pounds from travel over fuel assemblies in the storage pool.

Each of the gates is designed with a pneumatic seal that, when pressurized, seals the respective pool from the Spent fuel pool, forming a watertight barrier. No provisions for moving the gates over spent fuel were included in the licensing basis for RBS heavy loads. However, the qualified life for the gate seals necessitates that they be replaced several times over the life of the plant. Therefore, approval of an exception to the current prohibition for loads over the Spent fuel pool is required to allow for replacement of the gate seals.

To perform the movement of the gate from its installed position to a position where it can be accessed for seal replacement, an engineering plan that meets the intent of NUREG-0612, “Control of Heavy Loads [at Nuclear Power Plants],” has been developed. There are numerous design features, which comply with NUREG-0612 guidelines, that will preclude the gate from dropping onto the spent fuel assemblies during the movement activity. These features include the design of the lifting devices, design of the cask and fuel bridge cranes, crane operator training, and the use of written procedures. The guidance in NUREG-0612 will be met in all respects, except that in lieu of a single[-]failure-proof crane, the scheme will employ redundant and diverse means to meet the intent of single-failure proof movements.

It is proposed for the subject Spent fuel pool gate lift to use one of two rigging schemes that comply with the intent of NUREG-0612 guidance. The first one will be accomplished through the use of Fuel Building bridge crane and the cask crane at the same time to provide the redundancy required to make the lift a single-failure-proof lift and satisfy NUREG-0612 single-failure-proof criteria. The other rigging scheme will involve the use of lifting lugs welded to the overhead structural steel members and special lifting devices that are designed in accordance with NUREG-0612 single-failure-proof criteria.

In the first rigging scheme, the fuel building bridge crane and the cask crane will be used to perform the gate lifting and movement. The intent of NUREG-0612 is that in lieu of providing a single-failure-proof crane system, the control of heavy loads guidelines can be satisfied by establishing that the potential for a heavy load drop is extremely small. The gate lifting using the fuel building bridge crane

and cask crane will conform with NUREG-0612 guidelines in that the probability of the gate drop over the spent fuel assemblies is extremely small. Both cranes have a rated capacity of fifteen (15) tons. The maximum weight of the gate and associated lifting devices is one (1) ton. Therefore, there is ample safety factor margin for lifting and movements of the subject Spent fuel pool gate. Special lifting devices, which have redundancy or ultimate strength of at least 10 times the lifted load, will also be utilized during the rigging process. Even though neither the fuel building bridge crane or the cask crane is a single-failure-proof crane, rigging the Spent fuel pool gate using these cranes will provide the required redundancy that meets the intent of NUREG-0612 single-failure-proof criteria.

In the second rigging scheme, the initial gate lift will be performed through the use of structural steel lugs that are permanently welded to the Fuel Building overhead structural steel girder located over the centerlines of the wall openings for the two gates that separate the Spent fuel pool from the IFTS and the cask pools. For example, the IFTS lower pool gate will be moved northward toward the cask pool opening using the aforementioned structural steel lugs and lifting devices such as chains, slings, and shackles. Once the gate is through the cask pool opening, the movement path will no longer be over irradiated spent fuel. Once through the cask pool opening, the gate will be moved eastward toward the center of the cask pool. The cask crane auxiliary hook will lift the gate inside the cask pool. Finally, the gate will be placed on the Fuel Building floor elevation 113 [feet] adjacent to the cask pool for seal replacement. For the movement of the gate between the spent fuel pool and the cask pool, the distance of the movement is reduced because the gate movement would essentially entail lifting of the gate to above the hinges, rotating it, and moving it through the opening directly into the cask pool. Though seal replacement on the cask pool gate is not necessary at the present time, it may be necessary in the future. As such, the proposed changes would allow movement of either of the two spent fuel pool gates for repair or seal replacement.

The proposed load lift of the fuel pool gate for replacement of the seal conforms to all of the NUREG-0612 guidelines included in Section 5.1.5(1)(a) and 5.1.6. The design of the lifting lugs and associated lifting devices (chains, slings, shackles, hoists, etc.) will conform to the guidelines of NUREG-0612, Section 5.1.6, “Single-Failure Proof Handling System.” The auxiliary hook of the cask crane has a rated capacity of 15 tons. The cask crane is not a single-failure proof crane. However, it meets NUREG-0612 criteria of Section 5.1.1(6) and is designed for seismic loading. As discussed above, the cask crane, alone, will handle the gate only after the gate is located inside the cask pool where drop of the gate above the spent fuel rack is no longer a concern. The cask pool area has been evaluated for an accidental drop of the spent fuel cask. There is no safety-related equipment inside the cask pool. The maximum weight of the gate and associated lifting devices is 2000 pounds. Therefore, there is ample safety factor margin for lifting the gate with the cask crane.

The probability and consequences of a seismic event are not affected by the proposed gate lifting. The consequences of a seismic event during the gate

lifting are insignificant since both cranes, the fuel building bridge crane and the cask crane, are seismically qualified for the lifted load. In addition, the design of all rigging devices conforms to NUREG-0612 guidelines, with a factor of safety of 10 ultimate strength for the weight of the load.

Consistent with the defense-in-depth approach outlined in NUREG-0612, the movement will be conducted according to load handling instructions, operator training will be conducted on the activity prior to the movement, and the equipment will be inspected and checked before the movement will be performed. NUREG-0612 gives guidance that when a particular heavy load must be brought over spent fuel, alternative measures may be used. The combination of preventative measures, as proposed, minimizes the risks inherent in hauling large loads over spent fuel to permissible levels. With these provisions and the guidance in NUREG-0612, the increase in probability of a load drop is negligible.

It is therefore concluded that the proposed gate lifting and movement does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The lifting of the fuel pool gate in the spent fuel pool as described above, minimizes the possibility of a heavy load drop onto spent fuel assemblies as not credible in accordance with NUREG-0612 single-failure-proof criteria. In addition, movement of the gate in the cask pool using the cask crane does not create the possibility of a new or different kind of accident. The cask drop accident scenario in the current RBS licensing basis, since the cask crane is not a single-failure-proof crane, envelops the accidental drop of the gate in the cask pool during handling by the cask crane. That is, the analyzed weight of a cask is 125 tons versus the weight of the gate and the associated rigging of 1 ton.

It is therefore concluded that the proposed gate lifting does not create the possibility of a new or different kind of accident from any previously analyzed.

3. Involve a significant reduction in a margin of safety.

By following the guidance in NUREG-0612, the movement of the spent fuel pool gates will have no impact on the analyses of postulated design basis events for RBS. The NRC guidance provides an acceptable means of ensuring the appropriate level of safety and protection against load drop accidents. Therefore, there is no reduction in the margin of safety associated with postulated design basis events at RBS in allowing the proposed change to the RBS licensing basis. RBS will continue to meet its commitment to comply with NUREG-0612.

The NRC staff has reviewed the licensee's analysis and, based on this review, concludes that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff has made a final determination that the amendment request involves no significant hazards consideration.

8.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. 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 (64 FR 71511, dated December 21, 1999). 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.

9.0 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.

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