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May 31, 1996

C. R. Hutchinson
Vice President
Operations
Grand Gulf Nuclear Station

U.S. Nuclear Regulatory Commission
Mail Station P1-37
Washington, D.C. 20555

ATTENTION: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station and River Bend Station
Docket No. 50-416 and 50-458
License No. NPF-29 and NPF-47
Technical Specification Refueling Equipment Interlocks' Required Actions
Proposed Amendment to the Operating License

GNRO-96/00062
RBG-42764

Gentlemen:

Entergy Operations, Inc. is submitting by this letter a proposed amendment to the Grand Gulf Nuclear Station (GGNS) Operating License and a proposed amendment to the River Bend Station (RBS) Operating License. The proposed change adds additional acceptable Required Actions to Technical Specification Limiting Condition for Operation (LCO) 3.9.1, "Refueling Equipment Interlocks." The additional Required Actions provide an alternate method to compensate for inoperable refueling interlocks instead of halting fuel movement. The addition of these Required Actions will allow a reduction in refueling critical path time. The proposed change provides the same level of safety as the current requirements. We request NRC Staff complete its review and approval by October 1, 1996 to support GGNS' October 1996 refueling outage.

This proposed amendment has been submitted as part of the cost beneficial licensing action (CBLA) program established within NRR where increased priority is granted to licensee requests for changes requiring NRC Staff review that involve high cost without a commensurate safety benefit. A savings of \$125,000 per outage in reduced critical path time has been estimated resulting in a savings of \$2.25M for the remaining life of the plant for GGNS and \$2.5M for RBS for a total savings of \$4.75M.

Attachment 2 provides a detailed description of the proposed changes, justification, and the No Significant Hazards Considerations. Attachment 3 is a copy of the marked-up TS pages for GGNS and Attachment 4 is a copy of the marked-up TS pages for RBS.

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Based on the guidelines in 10 CFR 50.92, Entergy Operations has concluded that this proposed amendment involves no significant hazard considerations. Attachment 2 details the basis for this determination.

In accordance with the provisions of 10 CFR 50.4, the signed original of the requested amendment is enclosed.

Yours truly,



CRH/BSF

attachments:

1. Affirmation per 10 CFR 50.30 (2 pages)
2. Discussion and Justification (7 pages)
3. Mark-up of Affected Technical Specifications and Bases for GGNS (5 pages)
4. Mark-up of Affected Technical Specifications and Bases for RBS (5 pages)

cc:

Mr. R. B. McGehee (w/a)
Mr. N. S. Reynolds (w/a)
Mr. J. Tedrow (w/a)
Mr. H. L. Thomas (w/o)
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Mr. David L. Wigginton (w/2)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
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Washington, DC 20555

Department of Environmental Quality (w/a)
Radiation Protection Division
P.O. Box 82135
Baton Rouge, LA 70884-2135
ATTN: Administrator

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cc: (continued)

Dr. Eddie F. Thompson (w/a)
State Health Officer
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P.O. Box 1700
Jackson, Mississippi 39205

U.S. Nuclear Regulatory Commission (w/a)
Region IV
Suite 400
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BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

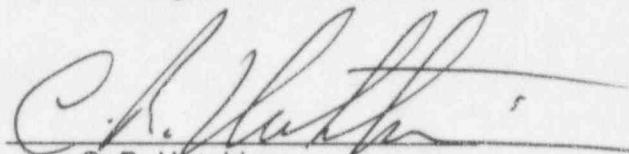
LICENSE NO. NPF-29
DOCKET NO. 50-416

IN THE MATTER OF

MISSISSIPPI POWER & LIGHT COMPANY
and
SYSTEM ENERGY RESOURCES, INC.
and
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION
and
ENTERGY OPERATIONS, INC.

AFFIRMATION

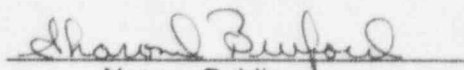
I, C. R. Hutchinson, being duly sworn, state that I am Vice President, Operations Grand Gulf Nuclear Station, of Entergy Operations, Inc.; that on behalf of Entergy Operations, Inc., System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission, this application; that I signed this application as the Vice President, Operations Grand Gulf Nuclear 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.


C. R. Hutchinson

STATE OF MISSISSIPPI
COUNTY OF CLAIBORNE

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the County and State above named, this 31st day of MAY, 1996.

(SEAL)


Notary Public

My commission expires:

MISSISSIPPI STATEWIDE NOTARY PUBLIC
MY COMMISSION EXPIRES JAN. 27, 2000
BONDED THRU STEGALL NOTARY SERVICE

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

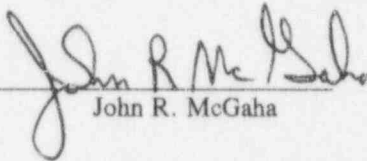
LICENSE NO. NPF-47

DOCKET NO. 50-458

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

AFFIRMATION


I, John R. McGaha, state that I am Vice President-Operations of Entergy Operations, Inc., at River Bend Station; that on behalf of Entergy Operations, Inc., I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission this License Amendment Request, that I signed this request 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 FELICIANA PARISH

SUBSCRIBED AND SWORN TO before me, Notary Public, in and for the Parish and State above named, this
29th day of May, 1996.

(SEAL)


Claudia F. Hurst
Notary Public

My Commission expires with life.

**GRAND GULF NUCLEAR STATION
AND
RIVER BEND STATION**

**TECHNICAL SPECIFICATION REFUELING EQUIPMENT
INTERLOCKS' REQUIRED ACTIONS**

DISCUSSION AND JUSTIFICATION

A. AFFECTED TECHNICAL SPECIFICATIONS

The following Technical Specifications are affected by the proposed change.

Limiting Condition for Operation (LCO)

3.9.1 Refueling Equipment Interlocks

The proposed Technical Specifications and the associated Technical Specification Bases changes to be implemented following NRC approval of the proposed Technical Specification changes are detailed in Attachment 3 for Grand Gulf Nuclear Station (GGNS) and Attachment 4 for River Bend Station (RBS).

B. BACKGROUND

The refueling equipment interlocks restrict the operation of the refueling equipment or the withdrawal of control rods to reinforce unit procedures in preventing the reactor from achieving criticality during refueling. The refueling interlock circuitry senses the conditions of the refueling equipment and the control rods. Depending on the sensed conditions, interlocks are actuated to prevent the operation of the refueling equipment or the withdrawal of control rods.

Two channels of instrumentation are provided. The following provide input to one or both channels: the position of the refueling platform, the loading of the refueling platform main hoist, and the full insertion of all control rods. With the reactor mode switch in the shutdown or refueling position, the indicated conditions are combined in logic circuits to determine if all restrictions on refueling equipment operations and control rod insertion are satisfied.

A control rod not at its full-in position interrupts power to the refueling equipment and prevents operating the equipment over the reactor core when loaded with a fuel assembly. Conversely, the refueling equipment located over the core and loaded with fuel inserts a control rod withdrawal block to prevent withdrawing a control rod.

The refueling platform has two mechanical switches that open before the platform and the fuel grapple are physically located over the reactor vessel. The main hoist has two switches that open when the hoist is loaded with fuel. The refueling interlocks use these indications to prevent operation of the refueling equipment with fuel loaded over the core whenever any control rod is withdrawn, or to prevent control rod withdrawal whenever fuel loaded refueling equipment is over the core. The hoist switches open at a load lighter than the weight of a single fuel assembly in water.

The refueling platform location switches activate at a point outside of the reactor core, such that, considering switch hysteresis and maximum platform momentum toward the core at the time of power loss with a fuel assembly loaded and a control rod withdrawn, the fuel is not over the core.

The refueling interlocks are explicitly assumed in the GGNS Updated Final Safety Analyses Report (UFSAR) and RBS Updated Safety Analyses Report (USAR) analysis of the control rod removal error or fuel loading error during refueling. This analysis evaluates the consequences of control rod withdrawal during refueling. A prompt reactivity excursion during refueling could potentially result in fuel failure with subsequent release of radioactive material to the environment.

Criticality and, therefore, subsequent prompt reactivity excursions are prevented during the insertion of fuel, provided all control rods are fully inserted during the fuel insertion. The refueling interlocks accomplish this by preventing loading fuel into the core with any control rod withdrawn, or by preventing withdrawal of a rod from the core during fuel loading.

Refueling equipment interlocks satisfy Criterion 3 of the NRC Technical Specification Policy Statement.

C. CURRENT TECHNICAL SPECIFICATION REQUIREMENTS

To prevent criticality during refueling, the refueling interlocks are required to ensure that fuel assemblies are not loaded with any control rod withdrawn (LCO 3.10.6, "Multiple Control Rod Withdrawal - Refueling," provides an exception to this and enforces additional controls as a result). To prevent these conditions from developing, the all-rods-in, the refueling platform position, and the refueling platform main hoist fuel loaded inputs are required to be OPERABLE.

With one or more of the required refueling equipment interlocks inoperable, the unit is required to be placed in a condition in which the LCO does not apply. Currently LCO 3.9.1 Required Action A.1 requires that in-vessel fuel movement with the affected refueling equipment be immediately suspended. This action ensures that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

D. PROPOSED TECHNICAL SPECIFICATION CHANGE

The proposed change adds additional acceptable Required Actions to the Actions of LCO 3.9.1. The additional Required Actions will add an alternative to suspending fuel movement in the reactor vessel when the refueling interlocks are inoperable. The requested alternative is to block control rod withdrawal immediately and to

perform an additional verification that all of the control rods required to be inserted are fully inserted.

E. JUSTIFICATION

As discussed in the Technical Specification Bases for the current Required Action, the purpose of the current requirement is to ensure that operations are not performed with equipment that would potentially not be blocked from unacceptable operations (e.g., loading fuel into a cell with a control rod withdrawn). The method that the refueling equipment interlocks perform their function whenever fuel is being moved in the reactor vessel is to block control rod withdrawal. Conversely, when a control rod is withdrawn (except as allowed by LCO 3.10.6) the refueling interlocks prevent fuel from being moved in the vessel. The proposed change will allow the refueling interlocks to be inoperable and fuel movement to continue if a control rod withdrawal block is in effect and all control rods are verified to be fully inserted thereby ensuring that fuel loading will not occur with a control rod inappropriately withdrawn.

The first refueling equipment interlock safety function is to block control rod withdrawal whenever fuel is being moved in the reactor vessel. The proposed alternative Required Actions will perform this function by requiring that a control rod block be placed in effect.

The second refueling equipment interlock safety function is to prevent fuel from being loaded into the vessel when a control rod is withdrawn. This function will continue to be performed by the proposed alternate LCO 3.9.1 Required Actions. Required Action A.2.1 will require that a control rod block be placed in effect thereby ensuring that control rods are not subsequently inappropriately withdrawn. Following placing the control rod withdrawal block in effect, Required Action A.2.2 will require that all control rods be verified to be fully inserted. This verification is in addition to the requirements to periodically verify control rod position in Surveillance Requirement (SR) 3.9.3.1 and SR 3.10.6.2. These proposed Required Actions will ensure that control rods are not withdrawn and cannot be inappropriately withdrawn because an electrical or hydraulic block to control rod withdrawal is in place. Like Required Action A.1 this will ensure that unacceptable operations are blocked (e.g., loading fuel into a cell with a control rod withdrawn).

Required Action A.2.2 is modified by a note identifying that control rods withdrawn in accordance with LCO 3.10.6 are not required to be inserted to meet Required Action A.2.2. This note is required to allow refueling activities to continue with control rods withdrawn from defueled cells. This note is not a relaxation from the current refueling equipment interlock OPERABILITY requirements, since LCO 3.10.6 currently allows the control rod position inputs to the refueling equipment interlocks be bypassed and fuel movement to continue. The current allowance of LCO 3.10.6 is justified by the associated LCO 3.10.6 requirement that the fuel assemblies

associated with the withdrawn control rod be removed from the core and the LCO 3.10.6 restrictions on fuel loading. The requested change does not affect the suitability of the LCO 3.10.6 controls. (Note: Modification of the LCO 3.10.6 requirements are being proposed by separate submittal. The LCO 3.10.6 changes proposed do not affect the changes requested by this submittal nor do the changes to LCO 3.10.6 affect the justification for this submittal.)

F. SAVINGS ASSOCIATED WITH THE REQUESTED CHANGE

As discussed previously, when the refueling equipment interlocks are inoperable in-vessel fuel movement is currently required to be suspended. Therefore, due to equipment inoperability or to perform Technical Specification SR 3.9.1.1, in-vessel fuel movement is suspended during the outage to meet the current Technical Specification requirements. This results in approximately 6 hours of extension in refueling operations every outage. The requested change will allow a control rod withdrawal block to be inserted and the required control rods verified to be inserted instead of suspending fuel movement if refueling equipment interlocks are inoperable removing this extension in the time required for refueling activities.

As a result, the proposed change provides a savings of approximately \$125,000 per outage in reduced critical path time resulting in a savings of \$2.25M for the remaining life of the plant for GGNS and \$2.5M for RBS for a total savings of \$4.75M.

G. NO SIGNIFICANT HAZARDS CONSIDERATION

Entergy Operations, Inc. proposes to change the current Grand Gulf Nuclear Station (GGNS) and River Bend Station (RBS) Technical Specifications. The specific proposed change adds additional acceptable Required Actions to the Actions of LCO 3.9.1, "Refueling Equipment Interlocks". The additional Required Actions will add an alternative to suspending fuel movement in the reactor vessel when the refueling interlocks are inoperable. The requested alternative is to insert a control rod withdrawal block immediately and verify all control rods required to be inserted are fully inserted.

The Commission has provided standards for determining whether a no significant hazards consideration exists as stated in 10 CFR 50.92(c). A proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

Entergy Operations, Inc. has evaluated the no significant hazards consideration in its request for this license amendment and determined that no significant hazards consideration results from this change. In accordance with 10 CFR 50.91(a), Entergy Operations, Inc. is providing the analysis of the proposed amendment against the three standards in 10 CFR 50.92(c). A description of the no significant hazards consideration determination follows:

I. The proposed change does not significantly increase the probability or consequences of an accident previously evaluated.

The refueling interlocks are explicitly assumed in the GGNS Updated Final Safety Analyses Report (UFSAR) and RBS Updated Safety Analyses Report (USAR) analysis of the control rod removal error or fuel loading error during refueling. This analysis evaluates the probability and consequences of control rod withdrawal during refueling. Criticality and, therefore, subsequent prompt reactivity excursions are prevented during the insertion of fuel, provided all control rods are fully inserted during the fuel insertion. The refueling interlocks accomplish this by preventing loading fuel into the core with any control rod withdrawn, or by preventing withdrawal of a rod from the core during fuel loading.

When the refueling interlocks are inoperable the current method of preventing the insertion of fuel when a control rod is withdrawn is to prevent fuel movement. This method is currently required by the Technical Specifications. An alternate method to ensure that fuel is not loaded into a cell with the control rod withdrawn is to prevent control rods from being withdrawn and verify that all control rods required to be inserted are fully inserted. The proposed actions will require that a control rod block be placed in effect thereby ensuring that control rods are not subsequently inappropriately withdrawn. Additionally, following placing the control rod withdrawal block in effect, the proposed actions will require that all required control rods be verified to be fully inserted. This verification is in addition to the requirements to periodically verify control rod position by other Technical Specification requirements. These proposed actions will ensure that control rods are not withdrawn and cannot be inappropriately withdrawn because an electrical or hydraulic block to control rod withdrawal is in place. Like the current requirements the proposed actions will ensure that unacceptable operations are blocked (e.g., loading fuel into a cell with a control rod withdrawn).

The proposed additional acceptable Required Actions provide the same level of assurance that fuel will not be loaded into a core cell with a control rod withdrawn as the current Required Action or the Technical Specification Surveillance Requirement. Therefore, the proposed change does not

significantly increase the probability or consequences of an accident previously evaluated.

- II. **The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.**

The change in the Technical Specification requirements does not involve a change in plant design. The proposed requirements will continue to ensure that fuel is not loaded into the core when a control rod is withdrawn except following the requirements of LCO 3.10.6, "Multiple Control Rod Removal - Refueling," which is unaffected by this change.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

- III. **The proposed change does not involve a significant reduction in a margin of safety.**

As discussed in the Bases for the affected Technical Specification requirements, inadvertent criticality is prevented during the insertion of fuel provided all control rods are fully inserted during the fuel insertion. The refueling interlocks function to support the refueling procedures by preventing control rod withdrawal during fuel movement and the inadvertent loading of fuel when a control rod is withdrawn.

The proposed change will allow the refueling interlocks to be inoperable and fuel movement to continue only if a control rod withdrawal block is in effect and all required control rods are verified to be fully inserted. These proposed Required Actions provide the same level of protection as the refueling interlocks by preventing a configuration which could lead to an inadvertent criticality event. The refueling procedures will continue to be supported by the proposed required actions because control rods cannot be withdrawn and as a result fuel cannot be inadvertently loaded when a control rod is withdrawn.

Therefore, the proposed changes do not cause a significant reduction in the margin of safety.