

January 11, 1996

Mr. John R. McGaha, Jr.  
Vice President - Operations  
Entergy Operations, Inc.  
River Bend Station  
P. O. Box 220  
St. Francisville, LA 70775

SUBJECT: RIVER BEND STATION, UNIT 1 - AMENDMENT NO. 85 TO FACILITY  
OPERATING LICENSE NO. NPF-47 (TAC NO.M93305)

Dear Mr. McGaha:

The Commission has issued the enclosed Amendment No.85 to Facility Operating License No. NPF-47 for the River Bend Station, Unit 1. The amendment consists of changes to the Technical Specifications (TSs) and the addition of a license condition in response to the Entergy Operations, Inc. application dated August 17, 1995, as supplemented by letters dated November 22, and December 18, 20, and 27, 1995.

The amendment revises the containment personnel air lock TSs to allow the air locks to be open in Modes 4 and 5 during core alterations except for movement of recently irradiated fuel. The license condition will assure the reestablishment of containment integrity should an accident occur while the air locks are open. All other provisions of the August 17, 1995, request are being deferred for further review.

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,

ORIGINAL SIGNED BY  
David L. Wigginton, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No.85 to NPF-47  
2. Safety Evaluation

cc w/encls: See next page

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

January 11, 1996

Mr. John R. McGaha, Jr.  
Vice President - Operations  
Entergy Operations, Inc.  
River Bend Station  
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The amendment revises the containment personnel air lock TSs to allow the air locks to be open in Modes 4 and 5 during core alterations except for movement of recently irradiated fuel. The license condition will assure the reestablishment of containment integrity should an accident occur while the air locks are open. All other provisions of the August 17, 1995, request are being deferred for further review.

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,

A handwritten signature in dark ink, appearing to read "D. L. Wigginton".

David L. Wigginton, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Docket No. 50-458

Enclosures: 1. Amendment No. 85 to NPF-47  
2. Safety Evaluation

cc w/encls: See next page

Mr. John R. McGaha  
Entergy Operations, Inc.

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

GULF STATES UTILITIES COMPANY\*\*  
CAJUN ELECTRIC POWER COOPERATIVE AND  
ENERGY OPERATIONS, INC.  
DOCKET NO. 50-458  
RIVER BEND STATION, UNIT 1  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 85  
License No. NPF-47

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Gulf States Utilities\* (the licensee) dated August 17, 1995, as supplemented by letters dated November 22, and December 18, 20, and 27, 1995, 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

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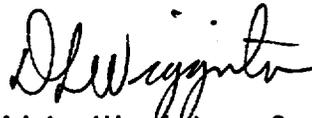
\* EOI is authorized to act as agent for Gulf States Utilities Company, which has been authorized to act as agent for Cajun Electric Power Cooperative, and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

\*\*Gulf States Utilities Company, which owns a 70 percent undivided interest in River Bend, has merged with a wholly owned subsidiary of Entergy Corporation. Gulf States Utilities Company was the surviving company in the merger.

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- 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. 85 and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. EOI shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
3. Further, the license is amended by the addition of license condition, Paragraph 2.C.(17) to read as follows:
- (17) Primary Containment Air Locks
- Primary containment air lock doors may be open during CORE ALTERATIONS, except when moving recently irradiated fuel, (i.e., fuel that has occupied part of a critical reactor core within the previous 11 days), provided the following conditions exist:
- 1) One door in each air lock is capable of being closed.
  - 2) Hoses and cables running through the air lock employ a means to allow safe, quick disconnect and are tagged at both ends with specific instructions to expedite removal.
  - 3) There is a minimum of 23 feet of water over the core.
  - 4) The air lock doors are not blocked open to allow expeditious closure.
  - 5) A designated individual is available to expeditiously close the air lock doors.
  - 6) Systems are available to filter and monitor releases from the containment.
4. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



David L. Wigginton, Senior Project Manager  
Project Directorate IV-1  
Division of Reactor Projects III/IV  
Office of Nuclear Reactor Regulation

Attachment: 1. Changes to the License  
2. Changes to the Technical Specifications

Date of Issuance: January 11, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 85

FACILITY OPERATING LICENSE NO. NPF-47

DOCKET NO. 50-458

Replace the following pages of the License with the attached pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change.

REMOVE

6  
7

INSERT

6  
7

In addition, replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.6-3  
3.6-6

INSERT

3.6-3  
3.6-6

(13) Partial Feedwater Heating (Section 15.1. SER)

The facility shall not be operated with partial feedwater heating beyond the end of the normal fuel cycle without prior written approval of the staff. During the normal fuel cycle, the facility shall not be operated with a feedwater heating capacity which would result in a rated thermal power feedwater temperature less than 320°F without prior written approval of the staff.

(14) Emergency Response Capabilities (Generic Letter 82-33, Supplement 1 to NUREG-0737, Section 7.5.2.4. SER and SSER 3, Section 18. SER, SSER 2 and SSER 3)

EOI shall complete the requirements of NUREG-0737 Supplement #1 as specified in Attachment 5. Attachment 5 is hereby incorporated into this license.

(15) Salem ATWS Event. Generic Letter 83-28 (Section 7.2.2.5. SSER 3)

EOI shall submit responses to and implement the requirements of Generic Letter 83-28 on a schedule which is consistent with that given in its letters dated August 3, 1984 and May 20, 1985.

(16) Merger Related Reports

GSU shall inform the Director, NRR:

- a. Sixty days prior to a transfer (excluding grants of security interests or liens) from GSU to Entergy or any other entity of facilities for the production, transmission or distribution of electric energy having a depreciated book value exceeding one percent (1%) of GSU's consolidated net utility plant, as recorded on GSU's books of account.
- b. Of an award of damages in litigation initiated against GSU by Cajun Electric Power Cooperative regarding River Bend within 30 days of the award.

(17) Primary containment air lock doors may be open during CORE ALTERATIONS, except when moving recently irradiated fuel, (i.e., fuel that has occupied part of a critical reactor core within the previous 11 days), provided the following conditions exist:

- 1) One door in each air lock is capable of being closed.
- 2) Hoses and cables running through the air lock employ a means to allow safe, quick disconnect and are tagged at both ends with specific instructions to expedite removal.
- 3) There is a minimum of 23 feet of water over the core.
- 4) The air lock doors are not blocked open to allow expeditious closure.

- 5) A designated individual is available to expeditiously close the air lock doors.
  - 6) Systems are available to filter and monitor releases from the containment.
- D. The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "River Bend Station Security Plan," with revisions submitted through May 25, 1995; "River Bend Station Guard Training and Qualification Plan," with revisions submitted through December 3, 1993; and "River Bend Station Contingency Plan," with revisions submitted through August 17, 1990. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein."
- E. Except as otherwise provided in the Technical Specifications or Environmental Protection Plan, EOI shall report any violations of the requirements contained in Section 2.C of this license in the following manner: initial notification shall be made within 24 hours to the NRC Operations Center via the Emergency Notification System with written followup within thirty days in accordance with the procedures described in 10 CFR 50.73(b), (c), and (e).
- F. The licensees shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.
- G. This license is effective as of the date of issuance and shall expire at midnight on August 29, 2025.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By

Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

**Enclosures:**

1. Attachments 1-5
2. Appendix A - Technical Specifications (NUREG-1172)
3. Appendix B - Environmental Protection Plan
4. Appendix C - Antitrust Conditions

Date of Issuance: November 20, 1985

Revised: December 16, 1993

3.6 CONTAINMENT SYSTEMS

3.6.1.2 Primary Containment Air Locks

LCO 3.6.1.2 Two primary containment air locks shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3,  
During movement of recently irradiated fuel assemblies in  
the primary containment,  
During operations with a potential for draining the reactor  
vessel (OPDRVs).

ACTIONS

-----NOTES-----

1. Entry and exit is permissible to perform repairs of the affected air lock components.
2. Separate Condition entry is allowed for each air lock.
3. Enter applicable Conditions and Required Actions of LCO 3.6.1.1, "Primary Containment-Operating," when air lock leakage results in exceeding overall containment leakage rate acceptance criteria in MODES 1, 2, and 3.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more primary containment air locks with one primary containment air lock door inoperable.</p>	<p>-----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Required Actions A.1, A.2, and A.3 are not applicable if both doors in the same air lock are inoperable and Condition C is entered.</li> <li>2. Entry and exit is permissible for 7 days under administrative controls if both air locks are inoperable.</li> </ol> <p>-----</p>	<p>(continued)</p>

**ACTIONS**

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.3 Restore air lock to OPERABLE status.	24 hours
D. Required Action and associated Completion Time of Condition A, B, or C not met in MODE 1, 2, or 3.	D.1 Be in MODE 3.	12 hours
	<u>AND</u> D.2 Be in MODE 4.	36 hours
E. Required Action and associated Completion Time of Condition A, B, or C not met during movement of recently irradiated fuel assemblies in the primary containment OPDRVs.	E.1 Suspend movement of recently irradiated fuel assemblies in the primary containment.	Immediately
	<u>AND</u>	Immediately
	E.3 Initiate action to suspend OPDRVs.	Immediately



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 85 TO FACILITY OPERATING LICENSE NO. NPF-47

ENERGY OPERATIONS, INC.

RIVER BEND STATION, UNIT 1

DOCKET NO. 50-458

1.0 INTRODUCTION

By application dated August 17, 1995, Entergy Operations, Inc. (EOI or the licensee) requested changes to the Technical Specifications (TSs) (Appendix A to Facility Operating License No. NPF-47) for the River Bend Station, Unit 1. The proposed changes would revise the TSs to allow the containment personnel air locks (PAL) to be open in Modes 4 and 5 during core alterations except for movement of recently irradiated fuel. The licensee provided additional information by letters dated November 22, and December 18, 20, and 27, 1995. These clarifications reflect current practices and did not change the initial no significant hazards determination.

The current TSs require that the PALs be operable during fuel movement and core alteration. This requirement is to prevent the release of radioactive material in the event of a fuel handling accident. EOI stated that because of the high level of modification, maintenance, and repair activities during outages, wear and tear on the two airlock doors to containment causes the doors to break down resulting in increased repair costs. These repairs also create a bottle neck situation for processing personnel and equipment in and out of the containment and drywell, including rerouting through the remaining door further delaying work.

The licensee's application dated August 17, 1995, also proposed changes for the secondary containment isolation instrumentation, control room fresh air system instrumentation, control room fresh air system, control room air conditioning system, primary containment during shutdown, fuel building, fuel building ventilation system, AC sources during shutdown, DC sources during shutdown, inverters during shutdown, and distribution systems during shutdown. The NRC is not acting on these changes pending further review. The action on these items is deferred, will continue to be pursued by the licensee and the NRC, and may be the subject of future licensing action.

2.0 BACKGROUND

By letter dated August 17, 1995, EOI proposed to amend Facility Operating License No. NPF-47 for the River Bend Station (RBS), by incorporating changes

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to their TSs. The licensee provided additional information by letter dated November 22, 1995, on control room analysis parameters and by letter dated December 18, 20, and 27, 1995, adding their administrative controls on air locks to their license as a license condition. The proposed changes will allow the containment personnel airlocks to be open during CORE ALTERATIONS within the containment after the reactor has been subcritical for a period of 11 days. These CORE ALTERATIONS, which include the movement of fuel, will be governed by conditions or specific language committed to by the licensee and added as a license condition. This condition states:

"Primary containment air lock doors may be open during CORE ALTERATIONS, except when moving recently irradiated fuel, (i.e., fuel that has occupied part of a critical reactor core within the previous 11 days), provided the following conditions exist:

- 1) One door in each air lock is capable of being closed.
- 2) Hoses and cables running through the air lock employ a means to allow safe, quick disconnect and are tagged at both ends with specific instructions to expedite removal.
- 3) There is a minimum of 23 feet of water over the core.
- 4) The air lock doors are not blocked open to allow expeditious closure.
- 5) A designated individual is available to expeditiously close the air lock doors.
- 6) Systems are available to filter and monitor releases from the containment."

In addition, the term recently irradiated fuel is defined in the bases of the technical specifications as "fuel that has occupied part of a critical core within the previous 11 days." This condition of prohibiting movement of irradiated fuels with less than 11 days decay, was a part of the larger review for opening containment, secondary containment, and other items and the 11 days directly relates to the fuel accident analysis for technical acceptance of all those provisions. Since the NRC is not prepared to address the overall proposed amendment, the 11 days for opening the air locks has been adopted for now. It is noteworthy that the NRC has accepted lesser times for other facilities where air locks are the single consideration and it is expected that the licensee may in the future, elect to establish a more appropriate time. Our analysis is on the 11 days which the licensee has proposed.

### 3.0 EVALUATION

The River Bend facility has a drywell and primary containment inside the secondary containment. There are two PALs on the secondary containment; one leading to the reactor building and the other leading to the spent fuel storage building. The reactor building and the spent fuel storage building have vented and filtered atmospheres and would be available for any radioactive fission products that might escape an open PAL during a fuel handling accident inside the containment. The River Bend facility has experienced outage delays due to the PAL door problems resulting from heavy use. EOI proposes that a designated individual be available to expeditiously and safely remove any hoses or cables running through the PAL, to ensure that

the doors are kept otherwise unblocked, and to be available to close one of the PAL doors in the event of an accident. Also, the minimum decay time prior to handling of irradiated fuel with the PAL doors open is established at 11 days, consistent with the revised fuel handling accident dose analysis which is discussed later in the safety evaluation.

The PAL is provided for the purpose of permitting personnel to enter and exit the containment while maintaining the integrity of the containment pressure boundary. Each PAL contains two airlock doors with a personnel chamber between the doors. In reactor operational Modes 1, 2, and 3, at least one of the two doors must be closed. Mechanical interlocks ensure that both doors cannot be opened at the same time. During shutdown and refueling operations, both doors may be opened at the same time (the interlock mechanism is intentionally disabled) unless (a) core alterations are in progress, (b) during operations with a potential for draining the reactor vessel, or (c) during movement of irradiated fuel assemblies in the primary containment. The licensee does not propose to change the PALs operation during the potential for draining down the vessel.

Core alterations are defined in the TSs as follows:

"CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS:

- a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement);  
and
- b. Control rod movement provided there are no fuel assemblies in the associated core cell.

Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position."

The Updated Final Safety Analysis Report for the River Bend facility includes an analysis of the accidents which can occur during core alterations. Those accidents postulated to occur during core alterations are: inadvertent criticality due to a control rod removal error, continuous control rod withdrawal error during refueling; and the inadvertent loading and operation of a fuel assembly in an improper location. These accidents are not postulated to result in fuel cladding integrity damage during shutdown. However, core alterations cover the movement of any fuel and the accident analysis of concern is the fuel handling accident. The licensee's original

fuel handling accident after 24 hours decay and with the containment closed except for certain vent and drain lines, has not been changed. The analysis for fuel handling accidents after the 11 day decay period as proposed by the licensee should bound any CORE ALTERATIONS with the PAL doors open. Therefore, for the PALs it is acceptable to delete core alterations for other than Modes 1, 2, or 3 based on an acceptable analysis for the fuel handling accident after the decay period proposed by the licensee.

The licensee has proposed a license condition to include provisions to expeditiously close one of the PAL doors in the event of a fuel handling accident. These provisions, which are acceptable, also include having a minimum of 23 feet of water over the core. TS 3.9.6 continues to require at least 23 feet of water above the reactor vessel flange for movement of irradiated fuel and TS 3.9.7 continues to require at least 23 feet of water above the core for movement of new fuel or control blades. Therefore, for CORE ALTERATIONS during shutdown or irradiated fuel movement, any release of radioactive fission products from damaged fuel will occur under water at a depth of at least 23 feet.

The minimum decay time of 11 days will assure that the release of fission product radioactivity, subsequent to a fuel handling accident, results in doses that are well within the guideline values specified in 10 CFR Part 100. Further guidance regarding limits for offsite radiation exposure are contained in Standard Review Plan Section 15.7.4, Rev. 1, which defines "well within" 10 CFR Part 100 to be 25% or less of the 10 CFR Part 100 values.

The staff has completed its evaluation of the potential radiological consequences of a fuel handling accident at River Bend Station, based upon the license condition and the proposed TS changes. In addition to reviewing the licensee's submittal, the staff performed an independent analysis to determine conformance with the requirements of 10 CFR Part 100 and General Design Criteria (GDC) 19 of Appendix A to 10 CFR Part 50. The staff's analysis utilized the accident source term given in Regulatory Guide 1.3, the assumptions contained in Regulatory Guide 1.25, and the review procedures specified in Standard Review Plan (SRP) Sections 15.7.4 and 6.4. The staff assumed an instantaneous puff release of noble gases and radioiodines from the gap and plenum of the broken fuel rods. These gas bubbles will pass through at least 23 feet of water covering the fuel prior to reaching the containment atmosphere. All airborne activity reaching the containment atmosphere is assumed to exhaust to the environment within 2 hours. As stipulated in the proposed TS change, the gap activity is assumed to have decayed for a period of 264 hours (11 days).

The staff computed the offsite doses for River Bend using the above assumptions and NRC computer code ACTICODE. Control room operator doses were determined using the methodology in SRP Section 6.4. The computed offsite doses and control room operator doses are within the acceptance criteria given

in SRP Section 15.7.4 and GDC 19. The assumptions used in calculating those doses and the resulting calculated values are attached in Tables 1 and 2.

The staff's dose calculation was based on the assumption that all of the radioactive material released to the containment escapes the containment within 2 hours. However, the staff has historically required plant technical specifications to maintain containment closure during core alterations and fuel handling as a defense-in-depth measure to further limit releases. Recently the staff has allowed changes to plant technical specifications to keep both doors to a containment air lock open during core alterations and fuel handling with provisions in place to close one door quickly, thereby reestablishing containment closure. The provisions described in the Background Section of this safety evaluation provide reasonable assurance that containment closure as a defense-in-depth measure can be reestablished quickly to limit releases much lower than assumed in the dose calculations.

The staff has reviewed the licensee's analysis and has performed an independent assessment of the radiological consequences resulting from a fuel handling accident during refueling operations with the containment air locks open. The staff concludes that the radiological consequences associated with this accident are within the acceptance criteria set forth in 10 CFR Part 100 and the control room operator dose criteria specified in GDC-19 of Appendix A to 10 CFR Part 50 and are acceptable.

#### 4.0 TECHNICAL SPECIFICATIONS/LICENSE CONDITIONS

The licensee in their original request had proposed changes to the TSs to allow the PALs to be open during CORE ALTERATIONS except for movement of recently irradiated fuel (fuel that has been critical in the past 11 days). The licensee's proposal was made as part of a larger consideration for removal of systems during refueling based on technical merits, however, the staff is not prepared at this time to act on those considerations and has deferred most of the request pending further review. The wording of the TSs proposed by the licensee reflects that larger consideration (i.e., during the period the PALs could be open, the TSs would not be applicable and the PAL doors would not be required to be operable), but does not reflect consideration of containment integrity. While the staff is prepared to accept the operation of PALs with both doors open during specific times during refueling, additional controls in the license to assure prompt reestablishment of containment are necessary. The licensee's commitment in their December 18, and 27, 1995, letters clarified those actions or controls, however, the commitment to add these to the bases of the TSs did not provide sufficient assurance. The licensee by letter dated December 20, 1995, proposed adding the controls to the license as a license condition. These controls and actions are consistent with the licensee's intent and original proposal and are being proposed by the licensee to provide clarification. The amended TSs and the license condition provide

the necessary assurance for reestablishment of containment integrity during CORE ALTERATIONS and movement of fuels. We find the proposed TSs and license condition acceptable.

#### 5.0 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.

#### 6.0 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 (60 FR 47619). 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.

#### 7.0 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.

Attachments: 1. Table 1  
2. Table 2

Principal Contributors: D. Carter  
R. Lobel  
D. Wigginton

Date: January 11, 1996

TABLE 1  
CALCULATED RADIOLOGICAL CONSEQUENCES  
 (rem)

<u>Exclusion Area Boundary</u>	<u>Dose</u>	<u>SRP 15.7.4 Limits</u>
Whole Body	0.17	6
Thyroid	45.2	75
<u>Control Room Operator</u>	<u>Dose</u>	<u>GDC-19 Limits</u>
Whole Body	<0.1	5
Thyroid	8.5	Equivalent* to 5 rem whole body

\* Guideline doses provided in Standard Review Plan Section 6.4 define the dose-equivalent as 30 rem to the thyroid.

TABLE 2

ASSUMPTIONS USED FOR CALCULATING RADIOLOGICAL CONSEQUENCES

<u>Parameters</u>	<u>Quantity</u>
Power Level, Mwt	3,039
Number of Fuel Rods Damaged (1 assembly plus 32 rods)	123
Total Number of Rods	38,688
Shutdown time, hours	264
Power Peaking Factor	1.5
Fission Product Release Duration*	2 hours
Release Fractions*	
Iodine	0.10
Noble Gases	0.30
Pool Decontamination Factors*	
Iodine	100
Noble Gases	1
Iodine Forms*	
Elemental	75%
Organic	25%
Core Fission Product Inventories per TID-14844	
<u>Receptor Point Variables**</u>	
<u>Exclusion Area Boundary</u>	
Atmospheric Relative Concentration, X/Q (sec/m <sup>3</sup> ) 0-2 hours	8.58 x 10 <sup>-4</sup>
<u>Low Population Zone</u>	
Atmospheric Relative Concentration, X/Q (sec/m <sup>3</sup> )	
0-2 hours	1.13 x 10 <sup>-4</sup>
8-24 hours	Not Used
1-4 days	Not Used
4-30 days	Not Used
<u>Control Room</u>	
Atmospheric Relative Concentration, X/Q (sec/m <sup>3</sup> )	1.62 x 10 <sup>-4</sup>
Control Room Volume, cubic feet	2.45 x 10 <sup>4</sup>
Maximum Infiltration Rate, ft <sup>3</sup> /min	39.5
Geometry Factor	17.8
Iodine Protection Factor	Not Used

Note: Dose conversion factors from ICRP-30 were utilized for all calculations

\* Regulatory Guide 1.25

\*\* River Bend FSAR