



50-416

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

November 21, 1996

Mr. Joseph J. Hagan
Vice President, Operations GGNS
Entergy Operations, Inc.
P. O. Box 756
Port Gibson, MS 39150

**SUBJECT: ISSUANCE OF AMENDMENT NO. 131 TO FACILITY OPERATING LICENSE
NO. NPF-29 - GRAND GULF NUCLEAR STATION, UNIT 1 (TAC NO. M95385)**

Dear Mr. Hagan:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 131 to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station, Unit 1. This amendment revises the Technical Specifications (TSs) in response to your two applications dated May 9 and July 31, 1996, as supplemented by the letters dated September 5, October 22, and November 15, 20, and 21, 1996. The letters of September 5, October 22, and November 15, 1996, were in response to the request for additional information issued by the Commission in its letter dated August 22, 1996.

The amendment (1) increased the safety limit minimum critical power ratio (SLMCPR) for two loop operation and single loop operation to 1.12 and 1.14, respectively, and (2) added two General Electric topical reports to the list of documents describing the analytical methods used to determine the core operating limits. The changes are to Section 2.1.1, Reactor Core Safety Limits, and Section 5.6.5, Core Operating Limits Report (COLR), respectively, of the Technical Specifications. This amendment goes into effect in Operating Cycle 9, at the end of the Refueling Outage 8, and the plant will have a mixed core of Siemens Power Corporation (SPC) 9x9-5 and General Electric (GE) GE11 reload fuel.

Each of your applications and letters, except the letter of November 22, 1996, contained a request for withholding proprietary information contained in two GE reports, attached to the two applications, and in the responses, attached to the letters of September 5 and October 22, 1996, to our request for additional information. There were two requests for withholding proprietary information attached to the letters of October 22, 1996. The five requests for withholding proprietary information will be addressed in five separate letters to you.

As stated in the enclosed Safety Evaluation, the above described TS changes involving the SLMCPRs for both two loop and single loop operation and adding two additional approved methodologies to the COLR are acceptable only for the Cycle 9 operation since the changes are analyzed based on the NRC-approved methods using Grand Gulf cycle-specific inputs.

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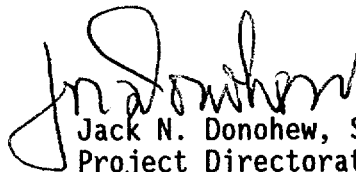
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Mr. Joseph J. Hagan

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A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,



Jack N. Donohew, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures: 1. Amendment No.131 to NPF-29
2. Safety Evaluation

cc w/enc's: See next page

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Docket File	PUBLIC	PD4-1 r/f	J. Donohew
J. Kilcrease, RIV f/r	C. Hawes	OGC (15B18)	G. Hill (2)
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NAME	JDonohew	CHawes	TCollins	UYoung	JDonohew
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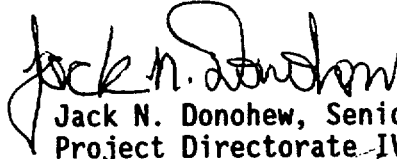
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Mr. Joseph J. Hagan

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A Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack N. Donohew". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Jack N. Donohew, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures: 1. Amendment No. 131 to NPF-29
2. Safety Evaluation

cc w/encs: See next page

Mr. Joseph J. Hagan
Entergy Operations, Inc.

Grand Gulf Nuclear Station

cc:

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

ENTERGY OPERATIONS, INC.

SYSTEM ENERGY RESOURCES, INC.

SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION

ENTERGY MISSISSIPPI, INC.

DOCKET NO. 50-416

GRAND GULF NUCLEAR STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 131
License No. NPF-29

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The applications for amendment by Entergy Operations, Inc. (the licensee) dated May 9 and July 31, 1996, as supplemented by the letters dated September 5, October 22, and November 15, 20, and 21, 1996, comply 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, 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 amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

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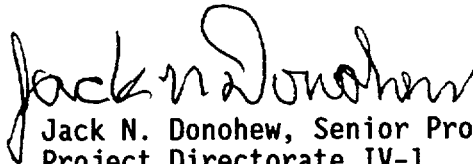
2. Accordingly, the license is amended by changes to the Technical Specifications, as indicated in the attachment to this license amendment; and paragraph 2.C.(2) of Facility Operating License No. NPF-29 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 131, are hereby incorporated into this license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Jack N. Donohew, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: November 21, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 131

FACILITY OPERATING LICENSE NO. NPF-29

DOCKET NO. 50-416

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

REMOVE

2.0-1
5.0-20
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INSERT

2.0-1
5.0-20
5.0-21

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 With the reactor steam dome pressure < 785 psig or core flow < 10% rated core flow:

THERMAL POWER shall be \leq 25% RTP.

*2.1.1.2 With the reactor steam dome pressure \geq 785 psig and core flow \geq 10% rated core flow:

MCPR shall be \geq 1.12 for two recirculation loop operation or \geq 1.14 for single recirculation loop operation.

2.1.1.3 Reactor vessel water level shall be greater than the top of active irradiated fuel.

2.1.2 Reactor Coolant System Pressure SL

Reactor steam dome pressure shall be \leq 1325 psig.

2.2 SL Violations

With any SL violation, the following actions shall be completed:

2.2.1 Within 1 hour, notify the NRC Operations Center, in accordance with 10 CFR 50.72.

2.2.2 Within 2 hours:

2.2.2.1 Restore compliance with all SLs; and

2.2.2.2 Insert all insertable control rods.

2.2.3 Within 24 hours, notify the plant manager and the corporate executive responsible for overall plant nuclear safety.

*MCPR values in T.S. 2.1.1.2 are applicable only for cycle 9 operation.

(continued)

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

10. XN-NF-85-74(P)(A), "RODEX2A (BWR): Fuel Rod Thermal-Mechanical Response Evaluation Model," Exxon Nuclear Company, Inc., Richland, WA.
11. XN-CC-33(P)(A), "HUXY: A Generalized Multirod Heatup Code with 10CFR50 Appendix K Heatup Option," Exxon Nuclear Company, Inc., Richland, WA.
12. XN-NF-825(P)(A), "BWR/6 Generic Rod Withdrawal Error Analysis, MCPR, for Plant Operation Within the Extended Operating Domain," Exxon Nuclear Company, Inc., Richland, WA.
13. XN-NF-81-51(P)(A), "LOCA-Seismic Structural Response of an Exxon Nuclear Company BWR Jet Pump Fuel Assembly," Exxon Nuclear Company, Inc., Richland, WA.
14. XN-NF-84-97(P)(A), "LOCA-Seismic Structural Response of an ENC 9x9 BWR Jet Pump Fuel Assembly," Advanced Nuclear Fuels Corporation, Richland, WA.
15. XN-NF-86-37(P), "Generic LOCA Break Spectrum Analysis for BWR/6 Plants," Exxon Nuclear Company, Inc., Richland, WA.
16. XN-NF-82-07(P)(A), "Exxon Nuclear Company ECCS Cladding Swelling and Rupture Model," Exxon Nuclear Company, Inc., Richland, WA.
17. XN-NF-80-19(A), Volumes 2, 2A, 2B, & 2C, "Exxon Nuclear Methodology for Boiling Water Reactors EXEM BWR ECCS Evaluation Model," Exxon Nuclear Company, Inc., Richland, WA.
18. XN-NF-79-59(P)(A), "Methodology for Calculation for Pressure Drop in BWR Fuel Assemblies," Exxon Nuclear Company, Inc., Richland, WA.
- * 19. NEDE-24011-P-A, General Electric Standard Application for Reactor Fuel (GESTAR-II) with exception to the misplaced fuel bundle analyses as discussed in GNRO-96/00087 and the generic MCPR Safety Limit analysis as discussed in GNRO-96/00100, letters from C. R. Hutchinson to USNRC.
- * 20. J11-02863SLMCPR, Revision 1, "GGNS Cycle 9 Safety Limit MCPR Analysis."

(continued)

* Items 19 and 20 of TS 5.6.5.b are applicable only for Cycle 9 operation.

5.6 Reporting Requirements

5.6.5 Core Operating Limits Report (COLR) (continued)

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
 - d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 131 TO FACILITY OPERATING LICENSE NO. NPF-29
ENTERGY OPERATIONS, INC., ET AL.
GRAND GULF NUCLEAR STATION, UNIT 1
DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated July 31, 1996 (Reference 1), which superseded letter dated May 9, 1996, Entergy Operations, Inc. (the licensee) proposed changes to the Technical Specifications (TSs) for Operating Cycle 9 at the Grand Gulf Nuclear Station, Unit 1. The requested changes would (1) revise the safety limit minimum critical power ratio (SLMCPR) from 1.06 to 1.12 for two recirculation loop operation and from 1.07 to 1.14, in TS Section 2.1.1.2, for single recirculation loop operation to support a mixed core of General Electric Company (GE) GE-11 fuel and Siemens Power Corporation (SPC) 9x9-5 fuel for Cycle 9 operation, and (2) added two General Electric topical reports to the list of documents describing the analytical methods used to determine the core operating limits in Section 5.6.5 of the TSs.

In response to the Nuclear Regulatory Commission (NRC) staff's request for additional information dated August 22, 1996 (Reference 2) with respect to the Entergy approach for the mixed-core SLMCPR calculations, the licensee has provided responses and clarifications in letters dated September 5, 1996 (Reference 3), October 22, 1996 (Reference 4) and November 15, 1996 (Reference 5). The licensee added a footnote to TS Sections 2.1.1.2 and 5.6.5 to state that the SLMCPR values and the additional reports in those sections were applicable only for Cycle 9 operation of the unit in its letters dated November 20 and 21, 1996 (References 7 and 8). These five letters from the licensee provided information that did not change the initial proposed no significant hazards consideration determination for the proposed action.

2.0 EVALUATION

The licensee requested changes to the Grand Gulf Nuclear Station Facility Operating License in accordance with the 10 CFR 50.90. The revised TSs were proposed as follows:

(1) Specification 2.1.1 Reactor Core Safety Limits

Due to the use of GE11 fuel and the first cycle operation with a mixed core of SPC (9x9-5) and GE (GE11) for the Grand Gulf Nuclear Station, Unit 1 Cycle 9 operation, the SLMCPR is proposed to change from 1.06 to 1.12 for two recirculation loop operation and from 1.07 to 1.14 for single loop operation based on the cycle-specific analysis performed

by GE (Reference 6). Plant- and cycle-specific fuel and core parameters were used including the actual core loading, the most limiting permissible control blade patterns, the actual bundle parameters, and the full cycle exposure range (References 3 and 6).

The staff has reviewed the proposed TS changes which are based on: (1) the analyses performed using Grand Gulf plant- and cycle-specific inputs and approved methodologies including GESTAR II (NEDE-24011-P-A-11, Sections 1.1.5 and 1.2.5) and NEDO-10985-A, January 1977, for both two loop and single loop operation; (2) a two-step process for mixed core analyses using real test data to support the modified GEXL critical power prediction (References 3 and 4); and (3) a conservatively derived uncertainty value for GEXL application to the Siemens fuel based on comparison to GEXL predictions of experimental test data. The staff has also reviewed the expression for the total uncertainty defined in the submittals (References 2, 3, 4 and 6) and does not agree that the uncertainties from the two-step process are independent and the covariance term is zero. However, the Item (3) stated above is valid since the total uncertainty is substantially larger than those uncertainties associated with the experimental test data. Therefore, the approach and the proposed SLMCPR values for Grand Gulf Unit 1 Cycle 9 mixed core SLMCPR calculation are acceptable. Because the R-factor methodology referenced in NEDE-24011-P-A-11 is not applicable to the part length GE11 fuel, an improved R-factor methodology described in NEDC-32505P, "R-Factor Calculation Method for GE11, GE12 and GE13 Fuel", November 1995 was used. The improved R-factor calculation method uses the same NRC-approved equation stated in GESTAR (NEDE-24011-P-A) with the correction factors to account for the peaking factor effects due to the part-length-rod design. The staff has reviewed the R-factor calculation method for GE11 and finds it acceptable for application to the GE11 fuel in Grand Gulf Unit 1 Cycle 9 operation. The new values will ensure that greater than 99 percent of the fuel rods will avoid transition boiling, thus preserving fuel cladding integrity for Cycle 9.

(2) Specifications 5.6.5 Core Operating Limits Report (COLR)

Two topical reports are proposed to be added to TS Section 5.6.5. They are the following:

Item 19. NEDE-24011-P-A, General Electric Standard Application for Reactor Fuel (GESTAR-II) with exception to misplaced fuel bundle analyses as discussed in GNRO-96/0087 and the generic MCPR Safety Limit Analysis as discussed in GNRO-96/0100, letters from C. R. Hutchinson to NRC; and

Item 20. J11-02863SLMCPR, Revision 1, "GGNS Cycle 9 Safety Limit MCPR Analysis" (Reference 6).

These revisions allow the use of approved methods for the Grand Gulf Unit 1 Cycle 9 mixed core analyses and will ensure that valves for cycle-specific parameters are determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, emergency core cooling systems limits, nuclear limits, and accident analysis limits) of the safety analysis are met. Therefore, they are acceptable. However, they should be revised for next reload, since they are applicable for the Cycle 9 operation only.

(3) Bases 2.1.1.1, 2.1.1.2, 2.0, 3.2.2, and 3.2

The proposed Bases changes are acceptable because they correspond to the proposed TS changes stated above and are administrative in nature.

Based on our review and consistent with the submittals of November 20 and 21, 1996, we conclude that the above described TS changes involving the SLMCPRs for both two loop and single loop operation and adding two additional approved methodologies to the COLR are acceptable only for the Grand Gulf Nuclear Station, Unit 1 Cycle 9 operation since the changes are analyzed based on the NRC-approved methods using Grand Gulf cycle-specific inputs.

3.0 CONCLUSIONS

We have reviewed the request by the licensee to revise the TSs of the Grand Gulf Nuclear Station, Unit 1 for the Cycle 9 operation. Based on the review, we conclude that the requested TS revision to SLMCPR and COLR is acceptable only for the Cycle 9 operation.

Placing a condition on the proposed action that (1) the SLMCPR values for two loop operation and single loop operation and (2) the two reports being added to TS Section 5.6.5 were only applicable for Cycle 9 operation was discussed with the licensee. By letters dated November 20 and 21, 1996, respectively, the licensee agreed to add a footnote to the SLMPCR values proposed for TS Section 2.1.1.2 and the additional reports for TS Section 5.6.5 that stated the SLMCPR values and the additional reports "are applicable only for Cycle 9 operation." The footnote will limit the applicability of the proposed SLMCPR values and the proposed two reports to only the upcoming Cycle 9 operation for Grand Gulf Nuclear Station, Unit 1.

Therefore, the staff concludes that the proposed changes to the TSs are acceptable.

4.0 REFERENCES

1. Letter (GNRO-96/0087) from C. R. Hutchinson to NRC, "Grand Gulf Nuclear Station Revision to Proposed Amendment to the Operating License 96/008, Revision 1," July 31, 1996.

2. Letter from J. N. Donohew (NRC) to C. R. Hutchinson, "Request for Additional Information Related to Proposed License Amendment on Minimum Critical Power Safety Limit," August 22, 1996.
3. Letter (GNRO-96/00100) from C. R. Hutchinson to NRC, "Response to NRC Request for Additional Information regarding Minimum Critical Power Safety Limit," September 5, 1996.
4. Letter (GNRO-96/00119) from J. J. Hagan to NRC, "Revised Response to NRC Request for Additional Information Regarding Minimum Critical Power Safety Limit," October 22, 1996.
5. Letter (GNRO-96/00126) from A. C. Goel to NRC, "Response to NRC Request for Additional Information regarding Minimum Critical Power Safety Limit," November 15, 1996.
6. Attachment 4 to the License Amendment Request Dated July 31, 1996, Licensing Topical Report, "J11-02863SLMCPR, General Electric GGNS Cycle 9 SLMCPR Analysis (Revision 1)," July 1996.
7. Letter (GNRO-96/00128) from M. J. Meisner to NRC, "Revision to Proposed Amendment to the Operating License PCOL-96/008, Revision 2," November 20, 1996.
8. Letter (GNRO-96/00129) from M. J. Meisner to NRC, "Revision to Proposed Amendment to the Operating License PCOL-96/008, Revision 3," November 21, 1996.

7.0 STATE CONSULTATION

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

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 and changes surveillance requirements. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (61 FR 50342). The amendment also changes recordkeeping and reporting requirements. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and (c)(10). 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.

Principal Contributor: Tai Huang

Date: November 21, 1996