August 24, 2007

Mr. William R. Brian
Vice President of Operations
Grand Gulf Nuclear Station
Entergy Operations, Inc.
P.O. Box 756
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 - ISSUANCE OF AMENDMENT RE: CHANGE TO TECHNICAL SPECIFICATIONS TO ALLOW CERTAIN TYPES OF RELIEF VALVES TO BE USED AS ISOLATION DEVICES (TAC NO. MD4676)

Dear Mr. Brian:

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 176 to Facility Operating License No. NPF-29 for the Grand Gulf Nuclear Station (GGNS), Unit 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated March 1, 2007.

The amendment revises the GGNS TSs to add a note to the Required Actions of TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)". GGNS TS 3.6.1.3 requires specific actions to be taken for inoperable PCIVs. The TS Required Actions include isolating the affected penetration by use of a closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. The new note would allow a relief valve to be used to comply with TS 3.6.1.3, Actions A.1 and B.1 without being deactivated provided it has a relief setpoint of at least 1.5 times containment design pressure (i.e., at least 23 pounds per square inch gauge) and meets one of the following criteria:

1. the relief valve is one-inch nominal size or less, or

2. the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

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

Sincerely,

/RA/

Bhalchandra Vaidya, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosures 1. Amendment No. 176 to NPF-29
2. Safety Evaluation

cc w/encls: See next page

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

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Bhalchandra Vaidya, Project Manager
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Division of Operating Reactor Licensing
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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. 176
License No. NPF-29

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

   A. The application for amendment by Entergy Operations, Inc. (the licensee) dated March 1, 2007, 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, 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.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to the 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. 176 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 and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Thomas G. Hiltz, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment: Changes to the Facility
Operating License No. NPF-29
and Technical Specifications

Date of Issuance: August 24, 2007

ATTACHMENT TO LICENSE AMENDMENT NO. 176

FACILITY OPERATING LICENSE NO. NPF-29

DOCKET NO. 50-416

Replace the following pages of the Facility Operating License No. NPF-29 and the Appendix A, Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Facility Operating License

Remove	Insert
4	4

Technical Specifications

Remove	Insert
3.6-10	3.6-10
3.6-11	3.6-11
--	3.6-11a

(b) SERI is required to notify the NRC in writing prior to any change in (i) the terms or conditions of any new or existing sale or lease agreements executed as part of the above authorized financial transactions, (ii) the GGNS Unit 1 operating agreement, (iii) the existing property insurance coverage for GGNS Unit 1 that would materially alter the representations and conditions set forth in the Staff's Safety Evaluation Report dated December 19, 1988 attached to Amendment No. 54. In addition, SERI is required to notify the NRC of any action by a lessor or other successor in interest to SERI that may have an effect on the operation of the facility.

C. The license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations set forth in 10CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

Entergy Operations, Inc. is authorized to operate the facility at reactor core power levels not in excess of 3898 megawatts thermal (100 percent power) in accordance with the conditions specified herein.

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 176 are hereby incorporated into this license. Entergy Operations, Inc. shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

The Surveillance Requirements (SRs) for Diesel Generator 12 contained in the Technical Specifications and listed below, are not required to be performed immediately upon implementation of Amendment No. 169 The SRs listed below shall be successfully demonstrated at the next regularly scheduled performance.

SR 3.8.1.9,
SR 3.8.1.10, and
SR 3.8.1.14

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 176 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 application dated March 1, 2007 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML070650542), Entergy Operations, Inc., et al. (the licensee), requested changes to the Technical Specifications (TSs) for Grand Gulf Nuclear Station, Unit 1 (GGNS).

The proposed changes would revise the GGNS TSs to add a note to the Required Actions of TS 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)." GGNS TS 3.6.1.3 requires specific actions to be taken for inoperable PCIVs. The TS Required Actions include isolating the affected penetration by use of a closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. The new note would allow a relief valve to be used to comply with TS 3.6.1.3, Actions A.1 and B.1 without being deactivated provided it has a relief setpoint of at least 1.5 times containment design pressure (i.e., at least 23 pounds per square inch gauge (psig)) and meets one of the following criteria:

1. the relief valve is one-inch nominal size or less, or

2. the flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

2.0 REGULATORY EVALUATION

The U.S. Nuclear Regulatory Commission (NRC) staff finds that the licensee in its March 1, 2007, submittal, identified the applicable regulatory requirements. The regulatory requirements and guidance which the staff considered in assessing the proposed TS change is as follows:

- Standard Review Plan (SRP), NUREG-0800, Section 6.2.4, "Containment Isolation System," establishes an acceptable setpoint margin for relief valves to be used as isolation devices.

- General Design Criteria (GDC) 54, 55, 56, and 57 of Appendix A to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50 require, in part, that piping systems penetrating primary reactor containment be provided with isolation capabilities that reflect the importance to safety of isolating these piping systems.

- *Federal Register* Notice (FRN) Volume 69, No. 224, published on November 22, 2004, notes that it assumes that defense-in-depth is maintained by ensuring with reasonable confidence that the containment isolation valves are capable of performing their close function.

- Section 50.69 of 10 CFR, "Risk-Informed Categorization and Treatment of Structures, Systems, and Components for Nuclear Power Reactors," permits licensees to request license amendments to remove certain systems, structures, and components (SSCs) of low safety significance from the scope of certain identified special treatment requirements and revise requirements for SSCs of greater safety significance.

3.0 TECHNICAL EVALUATION

3.1 Background

By letter dated June 27, 2005, the licensee proposed a similar change to GGNS TS 3.6.1.3 Required Actions, which would have allowed any relief valve with a relief setpoint of at least 1.5 times containment design pressure to be used to isolate the penetration flow path associated with an inoperable PCIV. During a teleconference between the licensee and the staff, the staff commented on the broad scope of the request and suggested that the licensee reconsider the scope or provide more specific details regarding the type of configurations for which the change would be applied. Subsequently, the licensee withdrew the request in consideration of the staff's comments.

The NRC has allowed similar types of penetrations and valves to be excluded from the scope of Appendix J containment leakage testing through issuance of 10 CFR 50.69, "Risk-informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors." The basis for these approvals was that containment leakage through these types of penetrations and valves were determined to not contribute in a significant way to diminishing safety or increasing risk.

As part of the rule, the Commission determined that Type C testing, normally required by 10 CFR Part 50 Appendix J, was not necessary for valves that are determined to be of low safety significance and that meet one or more of the following criteria:

1. The valve is required to be open under accident conditions to prevent or mitigate core damage events.

2. The valve is normally closed and in a physically closed, water-filled system.

3. The valve is in a physically closed system whose piping pressure rating exceeds the containment design pressure rating and is not connected to the reactor coolant pressure boundary.

4. The valve is 1-inch nominal pipe size or less.

The basis for allowing the Appendix J testing scope reduction is given in the FRN published on November 22, 2004. The FRN notes that it assumes that defense-in-depth is maintained by ensuring with reasonable confidence that the containment isolation valves are capable of performing their close function.

3.2 Proposed Change

TS 3.6.1.3 requires each PCIV to be operable in Modes 1, 2, and 3 and some PCIVs to be operable during certain other shutdown and refueling conditions. If a PCIV is inoperable in one or more penetration flow paths, then Condition A must be entered and the containment penetration flow must be isolated. Condition B requires similar actions for two or more inoperable PCIVs in one or more penetration flow paths. The methods of performing this isolation are stipulated in TS Required Actions A.1 and B.1. The methods include at least one closed and deactivated automatic isolation valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

The following note is proposed to TS 3.6.1.3 Required Actions A.1 and B.1 to allow certain relief valves to be used to isolate penetration flow paths without being deactivated.

NOTE: Relief valves are not required to be de-activated provided the relief setpoint is at least 23 psig and one of the following criteria is met:

1. The relief valve is one-inch nominal size or less, or

2. The flow path is into a closed system whose piping pressure rating exceeds the containment design pressure rating.

3.3 Evaluation of TS Change

Containment isolation devices consist of either passive devices or active (automatic) devices. Relief valves are considered to be passive isolation devices because no mechanical movement is required to perform the isolation function. Relief valves are designed to be normally closed to preserve the piping boundary integrity yet automatically open on an abnormal process pressure to protect the piping from overpressure conditions.

3.3.1 Relief Valve Setpoint

The SRP, NUREG-0800, establishes an acceptable setpoint margin for relief valves to be used as isolation devices. Section 6.2.4, “Containment Isolation System” of the SRP states, “Relief valves may be used as isolation valves provided the relief setpoint is greater than 1.5 times the containment design pressure.” This relief setpoint requirement is also consistent with ANSI/ANS 56.2-1984, “Containment Isolation Provisions for Fluid Systems After a LOCA

[Loss-of-Coolant Accident]," which states that the set pressure of the relief valve shall be at least 50 percent greater than containment design pressure. Since the GGNS containment design pressure is 15 psig, the relief setpoint for the relief valve must be greater than 22.5 psig (15 psig times 1.5) in order to be used as an isolation valve. This relief setpoint requirement provides reasonable confidence that the relief valve will remain in its normally closed position following an accident by reducing the potential for inadvertent opening due to containment post-accident pressures.

3.3.2 Relief Valve Size

The GGNS plant design uses 18 relief valves as PCIVs with 14 of these relief valves being 1 inch or smaller. Additionally, some of these relief valves also meet Criterion 2 (of the proposed note) because the penetration flow paths through the relief valves are also into closed systems.

Relief valves that are 1 inch or smaller provide an additional physical barrier in that, in the unlikely event that a relief valve were to fail to remain closed during or following an accident, the size restriction would limit leakage such that a large early release would not occur. Penetrations 1 inch and smaller do not contribute to large early releases, since the small size of the valve restricts containment leakage flow.

3.3.3 Closed System

There are four relief valves used in the GGNS design PCIVs that are larger than 1 inch. As indicated by the licensee, the relief function of one has been disabled by a modification so that the relief valve cannot open due to containment post-accident pressures and the containment isolation function is assured. The remaining three relief valves are installed on closed systems that are filled with water on the outboard side of the containment. The relief valves discharge into the suppression pool such that they are sealed from the containment atmosphere.

The staff agrees with the licensee's determination that relief valves that are larger than 1 inch would not be significant contributors to containment leakage following a design basis accident if the pathway mass and inventory was contained within a closed system. The GGNS Safety Evaluation Report, NUREG-0831, states that a closed system outside the containment shall be designed to Quality Group B and Seismic Category 1 standards. Valves which isolate the branch lines of these closed systems shall be normally closed and under strict administrative control. For these four relief valves, the staff has determined that GGNS can use these PCIVs to isolate penetration flow paths.

3.4 Summary - Technical Evaluation

The licensee's proposed TS change allows certain relief valves to be used to isolate a containment penetration flow path without being deactivated. The staff has determined that the failure of a relief valve to remain closed during or following an accident is considered a low probability because relief valves are passive isolation devices that do not require mechanical movement to perform the isolation function and the relief setpoint provides sufficient margin to preclude the potential for premature opening due to containment post-accident pressures. Furthermore, the criteria set forth, including the valve size and penetration configuration into a

closed system, provide an additional physical barrier for defense-in-depth. The NRC staff finds that the licensee's proposed change to the Required Actions of TS 3.6.1.3, preserves both the containment penetration flow path and the system overpressure protection function, and is therefore acceptable.

4.0 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.

5.0 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 published April 24, 2007 (72 FR 20382). Accordingly, the amendments meet 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.

6.0 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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: B. Lee, NRR/SCVB

Date: August 24, 2007