

July 21, 2004

Mr. George A. Williams  
Site Vice President  
Grand Gulf Nuclear Station  
Entergy Operations, Inc.  
P. O. Box 756  
Port Gibson, MS 39150

SUBJECT: GRAND GULF NUCLEAR STATION (GGNS), UNIT 1 - RE: REQUEST FOR RELIEF FROM THE REQUIREMENTS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) BOILER AND PRESSURE VESSEL CODE, SECTION XI, INSERVICE TESTING (IST) PROGRAM (TAC NO. MC3330)

Dear Mr. Williams:

By letter dated May 27, 2004, as supplemented by letter dated July 20, 2004, Entergy Operations, Inc. (EOI) submitted relief request GGNS PRR-E21-02 as an alternative to the quarterly testing requirements of the ASME Code, Section XI, as specified in the IST program for the GGNS, Unit 1. EOI proposed, as an alternative, that testing of low pressure core spray (LPCS) pump E21C001 be delayed until the next refueling outage (RFO14) in the fall of 2005.

Based on the Nuclear Regulatory Commission (NRC) staff's review of the information provided in relief request GGNS PRR-E21-02, the NRC staff concludes that EOI's compliance with the ASME Code provisions for quarterly testing of LPCS pump E21C001 at GGNS, Unit 1, until RFO14, would result in hardship without a compensating increase in the level of quality and safety. In addition, the proposed alternative provides reasonable assurance that the LPCS system is operationally ready. On this basis, EOI's proposed alternative in the subject relief request is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) until RFO14 for GGNS, Unit 1. Following RFO14, EOI will return to performing quarterly tests at GGNS, Unit 1 of LPCS pump E21C001 as required by the ASME Code, Section XI.

The NRC staff's evaluation and conclusions are contained in the enclosed safety evaluation. Should you have any questions regarding this safety evaluation, please contact Mr. Kalyanam at (301) 415-1480.

Sincerely,

*/RA/*

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

Docket No. 50-416

Enclosure: Safety Evaluation

cc w/encl: See next page

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cc w/encl: See next page  
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Accession No.:ML042030439\*Reference added MThadani \*Minimal changes made to SE input.

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO RELIEF REQUEST GGNS PRR-E21-02

ENTERGY OPERATIONS, INC., ET AL.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated May 27, 2004 (ADAMS Accession No. ML041560309), as supplemented by letter dated July 20, 2004, Entergy Operations, Inc. (EOI or the licensee) for the Grand Gulf Nuclear Station (GGNS), Unit 1, submitted relief request GGNS PRR-E21-02 as an alternative to the quarterly testing requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, as specified in its inservice testing (IST) program. The licensee proposed as an alternative that testing of low pressure core spray (LPCS) pump E21C001 be delayed until the next refueling outage (RFO14) in the fall of 2005.

2.0 REGULATORY EVALUATION

Pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(f)(4), IST of certain ASME Code Class 1, 2, and 3 pumps and valves at GGNS must be performed in accordance with Section XI of the ASME Code and applicable addenda, except where specific relief has been granted by the Nuclear Regulatory Commission (NRC). Specifically, 10 CFR 50.55a(a)(3) states, in part, that alternatives to the requirements of paragraph (f) may be used, when authorized by the NRC, if the licensee demonstrates that (i) the proposed alternative provides an acceptable level of quality and safety, or (ii) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The NRC guidance in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Program," provides acceptable alternatives to the ASME Code requirements. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants."

In accordance with 50.55a(f)(4)(ii), licensees are required to comply with the provisions of the latest edition and addenda of the ASME Code incorporated by reference in the regulations 12 months prior to the start of the 120-month IST program interval. At GGNS, Unit 1, the licensee is implementing, for the second 10-year interval of its program for inservice testing of pumps, Section XI of the 1989 edition of the ASME Code, which references ASME/American National Standards Institute (ANSI) Standard OMA-1988, Part 6, "Inservice Testing of Pumps in Light-Water Reactor Power Plants" (OM-6).

3.0 TECHNICAL EVALUATION

3.1 Code Requirements

ASME/ANSI OM-6, Paragraph 5.1, requires for each pump within the scope of the IST program that an inservice test be performed nominally every three months except as provided for pumps in regular use, pumps in systems out of service, and pumps lacking required fluid inventory (OM-6, paragraphs 5.3, 5.4, and 5.5).

3.2 Licensee's Basis for Requesting Relief

In its submittal dated May 27, 2004, the licensee provided the following basis for its relief request:

LPCS pump testing normally involves opening valve E21F012, which is a single containment isolation valve located on a 14 inch return line to the suppression pool. This return line is designed to allow full flow testing of the LPCS pump without injecting water into the reactor pressure vessel by taking water from, and returning it to, the suppression pool. Valve E21F012 isolates this return path to the suppression pool to ensure that the pump discharge would be directed to the vessel if needed. In addition, the valve must also be closed to allow the jockey pump to keep the system filled when the LPCS pump is in standby.

GGNS Technical Specifications, Surveillance Requirement 3.5.1.4 requires that the LPCS pump develop a flow rate of  $\geq 7115$  gpm [gallons per minute] at a total developed head  $\geq 290$  psid [pounds per square inch differential] (this differential is more conservative than the design value of 128 psid as provided in the Component Function statement...). The Frequency for performance of the surveillance is "In accordance with the Inservice Testing Program." The GGNS Inservice Testing Program includes a quarterly flow test for the LPCS pump and is used to implement the Technical Specification requirement.

During the last full flow test of the LPCS pump, problems were encountered when closing valve E21F012. Analyses have been done to determine the condition of the valve. Currently the valve is secured in the closed position and is considered to be performing its safety functions.

Valve E21F012 information is as follows:

<b>Component Identification</b>	<b>BPV Code Class</b>	<b>Size (Inches)</b>	<b>OM Code Category</b>
E21F012	2	14	A

The licensee provided the following as its bases for concluding that the pump is operationally ready:

- A thorough review of the LPCS pump flow test results that includes all tests from 1991 to present was conducted. All the test results indicate good pump performance. The data is consistent and results are well below the “alert” level. The last test (April 28, 2004) also indicated acceptable results.
- The LPCS pump is normally in the standby mode and is not operated routinely except for testing. The LPCS pump is not subject to the wear and the consequential degradation of a pump that is in continuous service.
- The LPCS pump is operable and capable of performing its safety function. Valve E21F012 is not required to open in order for the system or the pump to perform its safety function. It is only required to be closed.

Compliance with the specified requirements of OM-6, paragraph 5.1 to perform the pump quarterly test would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. This is demonstrated by the following:

- The required flow test of the LPCS pump cannot be performed without the E21F012 [Valve] being open. The valve is currently closed and deactivated with the associated breaker open.
- Because the valve is a single containment isolation valve and there is no isolation capability between it and the containment, the containment would have to be breached and Technical Specification 3.6.1.1 Limiting Condition for Operation (LCO) would have to be entered in order to repair or replace the valve. This LCO only allows 1 hour to restore the breach. Otherwise, a plant shutdown must be completed within 12 hours.
- Certain parts required to repair the valve (i.e., valve body and stem plug assembly) are not currently available. Some of these parts have long lead times because they are custom built and forged.

### 3.3 Licensee's Proposed Alternative to Code Testing Requirement

Pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee proposes the following alternative to the testing frequency specified above. On a one-time basis, the testing frequency will be extended until RFO14. After the outage, the testing frequency will be returned to the original testing frequency.

### 3.4 Staff Evaluation

As a result of degradation of valve E21F012, the licensee proposes to delay the next inservice test for the LPCS pump until RFO14. According to information provided by the licensee, the LPCS pump flow tests conducted quarterly from 1991 to present indicate that the pump has maintained good performance over this time period. These tests are conducted at high-flow

conditions in accordance with the GGNS, Unit 1 Technical Specifications (TSs). The most recent test on April 28, 2004, demonstrated that the pump is performing well.

The quarterly high-flow tests conducted by the licensee of the LPCS pump provide significantly more confidence in pump capability than the minimum flow tests allowed by the licensee's current ASME Code of record. Later ASME Code editions have included provisions for comprehensive pump tests with high flow rates to improve the confidence in pump capability. In light of the successful history of quarterly high flow testing of the LPCS pump at GGNS, Unit 1, significant degradation in the performance of the LPCS pump is not likely to occur over the time period until the next test in the fall of 2005 because the pump is normally in standby mode.

Valve E21F012 is secured in its closed position, and, in this position, the LPCS pump is capable of performing its safety function without the need to open the valve. The licensee has verified that the valve is structurally capable of maintaining its safety function in the closed position. Valve E21F012 is a single, containment-isolation valve, and, in order to repair or replace this valve, the containment would need to be breached. In GGNS, Unit 1, TS 3.6.1.1, the LCO allows only one hour for containment to be breached and then requires plant shutdown within 12 hours. This would not provide sufficient time to disassemble, inspect and, if necessary, repair the valve.

The licensee requests relief from the ASME Code provision for quarterly testing of the LPCS pump until Valve E21F012 can be disassembled, inspected, and repaired, as necessary, during RFO14 at GGNS, Unit1, scheduled for the fall of 2005. The long lead time for obtaining any needed replacement parts for Valve E21F012 supports scheduling these activities for the next RFO. Following completion of RFO14, the licensee will re-initiate performance of quarterly testing of the LPCS pump in accordance with its IST program.

Based on the current operational status of the LPCS pump, its successful performance history demonstrated through quarterly high-flow testing, the complexity of performing maintenance on Valve E21F012, and the limited time period for the requested relief, the NRC staff finds that compliance with the specified requirements of OM-6, Paragraph 5.1, to perform the LPCS pump quarterly test until the valve can be disassembled, inspected, and repaired, as necessary, during RFO14, in the fall of 2005, would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. In addition, the proposed alternative provides reasonable assurance that the LPCS system is operationally ready.

#### 4.0 CONCLUSION

The NRC staff concludes that the licensee's compliance with the ASME Code provisions for quarterly testing of LPCS pump E21C001 until RFO14 in the fall of 2005 as described in relief request GGNS PRR-E21-02 would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. On this basis, the licensee's proposed alternative in the subject relief request is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) until RFO14 for GGNS, Unit 1. Following RFO14, the licensee will return to performing quarterly tests of LPCS pump E21C001 as required by the ASME Code, Section XI.

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Date: July 21, 2004

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