

February 13, 2007

Mr. F. G. Burford  
Acting Director  
Nuclear Safety & Licensing  
Entergy Operations, Inc.  
1340 Echelon Parkway  
Jackson, MS 39213-8298

SUBJECT: GRAND GULF NUCLEAR STATION, UNIT 1 - REQUEST FOR ALTERNATIVE  
GG-ISI-003 RE: EXTENDING THE CURRENT INSERVICE INSPECTION  
INTERVAL IN ACCORDANCE WITH U.S. NUCLEAR REGULATORY  
COMMISSION INFORMATION NOTICE 98-44 (TAC NO. MD3167)

Dear Mr. Burford:

By letter dated October 4, 2006, as supplemented by letter dated December 14, 2006, Entergy Operations, Inc. (Entergy or the licensee), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), submitted Request for Alternative GG-ISI-003, which would extend the second inservice inspection (ISI) interval for piping at Grand Gulf Nuclear Station (GGNS) to the end of its sixteenth refueling outage currently scheduled for fall 2008.

The Nuclear Regulatory Commission (NRC) staff has reviewed the subject request, and concluded that the proposed alternative provides an acceptable level of quality and safety. Therefore, the NRC staff authorizes the proposed alternative in accordance with 10 CFR 50.55a(a)(3)(i) and extends the second ISI interval for piping at GGNS to the end of its sixteenth refueling outage, currently scheduled for fall 2008.

The NRC staff's Safety Evaluation is enclosed.

Sincerely,

*/RA/*

David Terao, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-416

Enclosure: Safety Evaluation

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

REQUEST NO. GG-ISI-003

REQUEST TO EXTEND CURRENT INSERVICE INSPECTION INTERVAL

ENTERGY OPERATIONS, INC., ET AL.

GRAND GULF NUCLEAR STATION

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated October 4, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML062850380), as supplemented by letter dated December 14, 2006 (ADAMS Accession Number ML063540133), Entergy Operations, Inc. (Entergy or the licensee), pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(a)(3)(i), requested an alternative to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (the ASME Code); the requested alternative (GG-ISI-003) would extend the second 10-year inservice inspection (ISI) interval for piping at Grand Gulf Nuclear Station (GGNS) by approximately 4 months beyond the 1-year extension allowed by ASME Code, Section XI. The licensee requested to extend the second 10-year ISI interval for GGNS to the end of its sixteenth refueling outage, which is currently scheduled for fall 2008, on the basis that the alternative provides an acceptable level of quality and safety. The request does not involve Examination Category B-F piping welds, which are inspected in accordance with Generic Letter 88-01, "NRC [Nuclear Regulatory Commission] Position on Intergranular Stress Corrosion Cracking (IGSCC) in BWR [Boiling-Water Reactor] Austenitic Stainless Steel Piping." The requested extension would extend approximately 4 months beyond the 1-year extension allowed by ASME Code, Section XI, Subsection IWB-2412(b).

2.0 REGULATORY EVALUATION

Pursuant to 10 CFR 50.55a(g), ISI of ASME Code Class 1, 2, and 3 components shall be performed in accordance with the requirements of Section XI of the ASME Code and applicable edition and addenda, except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Paragraph 50.55a(a)(3) of 10 CFR states, in part, that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the licensee demonstrates that: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice

Inspection (ISI) of Nuclear Power Plant components,” to the extent practical within the limitations of design, geometry, and materials of construction of the components.

The regulations require that inservice examination of components and system pressure test conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the second 10-year ISI interval for GGNS is the 1992 Edition with portions of the 1993 Addenda applicable to pressure testing of the ASME Code, Section XI. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

Currently, GGNS is in its second 10-year ISI interval. By letter dated September 22, 2006, the licensee stated that it plans to implement a risk-informed/safety-based ISI (RIS\_B) program during the third inspection period of the current (second) 10-year ISI interval. Staff review of the licensee’s proposed RIS\_B program is in progress. The licensee has requested this extension to the ISI interval to allow time for the NRC staff review of the RIS\_B request (Reference 3), pursuant to NRC Information Notice (IN) 98-44 (Reference 2).

### 3.0 TECHNICAL EVALUATION

#### 3.1 Description - Request No. GG-ISI-003

##### 3.1.1 ASME Code, Section XI, Components Affected (As Submitted)

Components/Numbers: Piping Welds

Code Class: 1 and 2

Examination Category: B-J, C-F-1, and C-F-2

Item Numbers: All

Description: Piping Welds

Unit / Inspection Interval Applicability: Grand Gulf Nuclear Station (GGNS) second (2nd) 10-year interval

##### 3.1.2 Applicable Code Edition and Addenda

ASME Code, Section XI, 1992 Edition with portions of 1993 Addenda applicable to pressure testing. Subsection IWA-2430(d) requirements for component inspected under Program B.

ASME Code, Section XI, Table IWB-2412-1 defines an ISI interval to be 10 years in duration. IWB-2412(b) allows extending the interval for 1 year to coincide with a plant outage.

### 3.1.3 Proposed Alternative (As Submitted)

Pursuant to 10 CFR 50.55a(a)(3)(i), Entergy requests authorization to extend the second interval to include an additional refueling outage (approximately 4 months beyond the Code-allowed one-year extension) for items in Examination Categories B-J, C-F-1, and C-F-2.

### 3.1.4 Licensee Basis for Alternative (As Submitted)

NRC Information Notice (IN) 98-44, Ten-Year Inservice Inspection Program Update for Licensees that Intend to Implement RI-ISI of Piping (Reference 2), states that the probabilistic risk assessment technology in NRC regulatory activities should be increased to the extent supported by state-of-the-art methods and data and in a manner that complements the NRC's deterministic approach. Basically, this information combined with risk assessment techniques and associated data provides for developing an effective approach to the ISI program. This approach provides an acceptable level of quality and safety, as required by 10 CFR 50.55a(a)(3)(i). IN 98-44 also states that the NRC staff will consider authorizing a delay of up to 2 years in implementing the next 10-year ISI program for piping only in order for the licensee to develop and obtain approval for the risk-informed ISI program for piping.

GGNS is currently in the second ISI interval as defined by ASME Section XI Code for Inspection Program B. GGNS has submitted to the NRC staff Request for Alternative GG-ISI-002 (Reference 3) to implement a risk-informed / safety-based inservice inspection (RIS\_B) program. Entergy plans to implement the RIS\_B ISI program during the fifteenth refueling outage (RF-15), currently scheduled for spring 2007. If approval of the RIS\_B ISI program cannot be accomplished prior to RF-15, Entergy plans to implement it during the sixteenth refueling outage (RF-16), currently scheduled for fall of 2008. To accomplish this, Entergy requires approval of this request, GG-ISI-003, to extend the second ISI interval to the end of RF-16 (approximately 4 months beyond the Code-allowed one-year extension).

The RIS\_B process requested in Request for Alternative GG-ISI-002 (Reference 3) is based upon ASME Code Case N-716, *Alternative Piping Classification and Examination Requirements, Section XI Division 1*, which is founded in large part on the RI-ISI process as described in Electric Power Research Institute (EPRI) Topical Report (TR) 112657 Rev. B-A, *Revised Risk-Informed Inservice Inspection Evaluation Procedure*. Request for Alternative GG-ISI-002 demonstrates a reduction in risk (or maintains risk neutrality) while substantially reducing worker exposure and undue burden. Because risk-informed ISI programs focus inspections (and inspection methods) on locations potentially susceptible to degradation while considering the consequence of piping failure, a more robust targeted inspection program can be defined.

## 3.2 Evaluation

The NRC staff has reviewed the relief request alternative GG-ISI-003 submitted in the licensee's letter dated October 4, 2006, and supplemented by letter dated December 14, 2006, for the third period of the second 10-year ISI interval of GGNS pertaining to Class 1 and 2 piping welds. The licensee requested approval to extend its ISI interval for piping to the end of GGNS's sixteenth refueling outage (RF-16), currently scheduled for fall 2008. The requested extension would extend approximately four months beyond the one-year extension allowed by ASME Code, Section XI, IWA-2430(d).

NRC IN 98-44, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees that Intend to Implement Risk-Informed ISI of Piping," states that for licensees that intend to implement an RI-ISI program for piping and follow the guidance provided in IN 98-44, the staff will consider authorizing a delay of up to 2 years in implementation of the ISI program for piping only. GGNS' current ISI program for the second 10-year interval started in June 1997 and is scheduled to end on May 2007. In a letter dated September 22, 2006, GGNS submitted request for alternative GG-ISI-002, which would authorize it to implement a risk-informed/safety-based ISI (RIS\_B) program. The RIS\_B is based on Code Case N-716, which is similar to the RI-ISI process as described in the NRC-approved Electric Power Research Institute Topical Report, EPRI TR-112657, "Revised Risk-Informed Inservice Inspection Evaluation Procedure," Revision B-A. The licensee indicated that alternative GG-ISI-002 will demonstrate a reduction in risk (or maintain risk neutrality) while substantially reducing worker exposure and undue burden. The RIS\_B program will focus its inspections on locations that are potentially susceptible to degradation while considering the consequences of piping failure.

The licensee stated that at the end of the previous refueling outage (RF-14), 71 percent of the piping weld examinations required by the ASME Code, Section XI, had been completed in the second 10-year interval for examination categories B-F, B-J, C-F-1 and C-F-2. If alternative GG-ISI-002 is approved prior to the fifteenth refueling outage (RF-15), the remaining 29 percent of the inspection locations necessary to ensure the 100-percent completion of examinations will be selected for examination per the RIS\_B process in the third period of the ISI interval, and performed during RF-16. In the event that alternative GG-ISI-002 is not approved, the licensee plans to submit a different request for alternative to establish a RIS\_B program based on ASME Code Case N-578. With such a submittal, Entergy has indicated that it would also seek an additional extension of GGNS's second 10-year ISI interval. The third 10-year ISI interval will include examination of 100 percent of the inspection locations selected for examination per an approved RIS\_B Program. Furthermore, the licensee confirmed that during a delay of approval of alternative GG-ISI-002, it plans to continue to perform required augmented inspection programs as per its commitment to the staff in various correspondence. Augmented inspections pertaining to IGSCC are scheduled to be performed during RF-15.

The NRC staff concludes that extending GGNS's second 10-year ISI interval to the end of its RF-16 will provide an acceptable level of quality and safety because:

1. A significant percentage of the required examinations for the second 10-year ISI interval have been completed and no problems have been identified,
2. Additional piping weld examinations will be performed in the third period of the interval regardless of whether the licensee's requested RIS\_B ISI program, the Alternative

GG-ISI-002, is approved by the NRC staff,

3. The requested extension is consistent with the criteria identified in IN 98-44, and
4. The delay requested in alternative GG-ISI-003 will be a one time-occurrence and will not affect future ISI intervals.

Further, the extension would allow time for the NRC to review GGNS's risk-informed ISI submittal (Reference 3) while not affecting future ISI intervals. As noted above, the proposed RIB\_B program will require NRC authorization prior to implementation.

#### 4.0 CONCLUSION

Based on the information provided in the licensee's relief request for alternative GG-ISI-003, dated October 4, 2006, as supplemented by letter dated December 14, 2006 (and in light of the licensee's submission of request for alternative GG-ISI-002, dated September 22, 2006, for the implementation of a RIS\_B program), the NRC staff has determined that extending GGNS's second 10-year interval to include an additional refueling outage (approximately 4 months beyond the Code-allowed 1-year extension) would provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the licensee to extend GGNS's second (current) 10-year ISI interval for piping to the end of its sixteenth refueling outage, currently scheduled for fall 2008.

All other requirements of the ASME Code, Section XI, for which relief was not specifically requested and authorized herein by the NRC staff, remain applicable, including third party review by the Authorized Nuclear Inspector.

#### 5.0 REFERENCES

1. ASME Code, Section XI, 1992 Edition with portions of 1993 Addenda.
2. NRC IN 98-44, "Ten-Year Inservice Inspection (ISI) Program Update for Licensees that Intend to Implement Risk-Informed ISI of Piping."
3. Entergy letter CNRO-2006-00043 to the NRC, "Request for Alternative GG-ISI-002, Request to Use ASME Code Case N-716," dated September 22, 2006.

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Date: February 13, 2007

Grand Gulf Nuclear Station

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