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W3F1-2007-0051

November 14, 2007

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Request for Extension of Completion Date for Corrective Actions Required
by Generic Letter 2004-02
Waterford Steam Electric Station, Unit 3 (Waterford 3)
Docket No. 50-382
License No. NPF-38

Reference: NRC letter to Mr. Anthony R. Pietranglo of NEI dated November 8, 2007
entitled "Plant – Specific Requests for Extension of Time to Complete One or
More Corrective Actions for Generic Letter 2004-02, Potential Impact of
Debris Blockage on Emergency Recirculation During Design Basis Accidents
at Pressurized-Water Reactors"

Dear Sir or Madam:

By letters dated September 16, 2005 (W3F1-2005-0063), December 19, 2005 (W3F1-2005-0084), and November 29, 2006 (W3F1-2006-0038), Entergy provided responses to Generic Letter (GL) 2004-02, "*Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors (PWRs)*," dated September 13, 2004, for Waterford-3 (W-3). In the September 16, 2005, correspondence, Entergy described plans for plant modifications that included the installation of a new sump strainer during the W-3 fall 2006 refueling outage. The November 29, 2006 letter also described Entergy's plans for evaluating the adequacy of the strainer design, and plans to address chemical effects once test results to quantify the effect on head-loss had been completed. In the December 19, 2005, correspondence, Entergy provided the results of the downstream effects evaluation and stated that further evaluations were being performed to resolve the issue.

During the fall 2006 refueling outage for W-3 (RFO14), the original sump screens were replaced by new engineered strainers. These modifications represent a significant improvement over the original design by providing greatly increased strainer surface area by approximately 18 times.

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MRR

This letter requests an extension until restart, following refueling outage 15, currently scheduled to end on May 24, 2008, to complete the analysis for W-3 needed to achieve compliance with GSI-191. The basis for the proposed extension is provided in Attachment 1.

New commitments contained in this submittal are summarized in Attachment 2. If you have any questions or require additional information, please contact Greg Scott at 504-739-6703.

I declare under penalty of perjury that the foregoing is true and correct. Executed on November 14, 2007.

Sincerely,



KSC/GCS/ssf

- Attachment(s):
1. Request for Extension of Completion Date for Corrective Actions Required by Generic Letter 2004-02
 2. List of Regulatory Commitments

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Attachment 1

W3F1-2007-0051

Request for Extension of Completion Date for Corrective Actions Required by
Generic Letter 2004-02

Request for Extension of Completion Date for Corrective Actions
and Modifications Required by Generic Letter 2004-02

1.0 Background

In GL 2004-02, the NRC requested licensees to perform a mechanistic evaluation of the potential for the adverse effects of post-accident debris blockage and operation with debris-laden fluids to impede or prevent the recirculation functions of the emergency core cooling system (ECCS) and containment spray system (CSS) following postulated accidents for which these systems are required. By letters dated September 16, 2005, December 19, 2005, and November 29, 2006, Entergy provided a response to GL 2004-02. In the September 16, 2005, correspondence, Entergy described plans for plant modifications that included the installation of a new sump strainer during the W-3 fall 2006 refueling outage. Entergy also discussed plans for evaluating the adequacy of the strainer design and plans to address chemical effects once test results to quantify chemical debris effect on head-loss have been completed. In the December 19, 2005, correspondence, Entergy provided the results of the downstream effects evaluation and stated that further evaluations were being performed to resolve the issue.

Entergy installed replacement strainers during the fall 2006 refueling outage. This modification is described below in more detail in Section 3.2 *Mitigative Measures*. W-3 has continued the evaluations of the adequacy of the strainer design to handle the predicted post-LOCA debris and chemical loads in accordance with Nuclear Energy Institute (NEI) 04-07, Volume 1, "Pressurized Water Reactor Sump Performance Methodology," and NEI 04-07, Volume 2, "Safety Evaluation by the Office of Nuclear Reactor Regulation Related to NRC GL 2004-02," Revision 0, dated December 2004, with justifiable refinements. Waterford 3 is requesting additional time to complete the analysis as described in section 2.0, Reason for the Request for Extension.

2.0 Reason for the Request for Extension

Entergy's strategy for resolution of GL 2004-02 for W-3 includes analysis of the downstream effects on the fuel per WCAP-16793-P, "Evaluation of Long-Term Cooling Associated with Sump Debris Effects," which is currently under NRC review. The current schedule to complete the analysis is early spring 2008 as shown in 3.1 *Plant-Specific Technical/Experimental Plan*. Waterford 3 is requesting an extension to finalize this and other supporting analyses.

3.0 Technical Basis for Proposed Extension

The reasons for the extension meet the criteria identified in SECY-06-0078, from L. A. Reyes, NRC Executive Director for Operations, to NRC Commissioners, "Status of Resolution of GSI-191, Assessment of Debris Accumulation on PWR Sump Performance," dated March 31, 2006, for extension beyond the completion date of December 31, 2007, specified in GL 2004-02. The SECY criteria are:

Proposed extensions to permit changes at the next outage of opportunity after December 2007 may be acceptable if, based on the licensee's request, the staff determines that:

- *The licensee has a plant-specific technical/experimental plan with milestones and schedule to address outstanding technical issues with enough margin to account for uncertainties.*
- *The licensee identifies mitigative measures to be put in place prior to December 31, 2007, and adequately describes how these mitigative measures will minimize the risk of degraded ECCS and CSS functions during the extension period.*

For proposed extensions beyond several months, a licensee's request will more likely be accepted if the proposed mitigative measures include temporary physical improvements to the ECCS sump or materials inside containment to better ensure a high level of ECCS sump performance.

W-3 meets these criteria as described below.

3.1 Plant-Specific Technical/Experimental Plan

In the September 16, 2005, correspondence, Entergy submitted a description of the actions it is taking to address GL 2004-02, and updated that response in the December 19, 2005, correspondence. The key actions of the plan are summarized below.

(1) Completed Actions

- (a) Installation of new sump strainer modifications during the fall 2006 refueling outage
- (b) Evaluation of debris generation, debris transport, and downstream effects calculations

(2) Actions in Progress

- (a) Re-evaluation of debris generation and debris transport
- (b) Downstream effects re-evaluation in accordance with the recently revised topical report, WCAP-16406-P
- (c) Strainer debris head loss testing
- (d) Chemical effects testing using plant-specific methodology

(3) Planned Actions

- (a) Fuel downstream effects analysis expected in spring 2008
- (b) Issue strainer certification/qualification report expected in spring 2008 (based on analysis completion)
- (c) Licensing basis update for W-3 60 days after completion of RFO15

The extent of the modifications and analyses already performed and those in progress and planned demonstrate that Entergy has developed a plant-specific technical/experimental plan, with milestones and schedule to address outstanding technical issues.

3.2 Mitigative Measures

Entergy has put in place the following mitigative measures that minimize the risk of degraded ECCS and CSS functions during the extension period.

- (1) Installation of replacement sump strainers – During the fall 2006 refueling outage the original containment sump screen (approximately 200 ft²) was replaced. The replacement strainer is a stacked disk design and has a surface area of 3699 ft². The perforated holes are sized to 3/32" diameter. This strainer was designed to minimize fiber debris bypass to reduce downstream effects and to provide a substantial increase in available strainer surface area. The new strainer provides increased margin against blockage and excessive wear of downstream components due to debris in the water.
- (2) Implementation of mitigative measures in response to NRC Bulletin 2003-01, "*Potential Impact of Debris Blockage on Emergency Sump Recirculation at PWRs*" – In addition to the plant modifications described above, current mitigative measures in response to NRC Bulletin 2003-01, are in place and continue to be in effect. Entergy's response to NRC Bulletin 2003-01 is documented in correspondences dated August 7, 2003 (WF3-2003-0050), October 27, 2004 (WF3-2004-0100), October 20, 2005 (WF3-2005-0058), and December 15, 2005 (WF3-2005-0080). By letter dated December 27, 2005, the NRC staff concluded that Entergy's compensatory measures that have been implemented to reduce the risk which may be associated with potentially degraded or nonconforming ECCS and CSS recirculation functions were responsive to and met the intent of Bulletin 2003-01.

These measures include:

- (a) Training to the licensed operators to present the mechanisms and potential consequences of sump clogging
- (b) Procedural guidance within the emergency operating procedures on symptoms and identification of sump blockage
- (c) Severe accident management guidance to consider refilling the refueling water tank should sump blockage become a concern
- (d) Containment cleanliness assured by procedural controls that apply after each containment entry and prior to plant startup from an outage
- (e) Foreign material exclusion assured by procedural controls that apply to inspection, operation, maintenance, and outage activities
- (f) Procedural guidance ensures that containment drainage paths are unblocked
- (g) Procedural guidance ensures sump cleanliness and integrity

(3) In addition to the above:

- (a) Engineering procedure ensures that as part of the engineering change process, materials (including insulation, coatings, debris, etc.) that are introduced to containment are identified and evaluated to determine if they could affect sump performance or lead to downstream equipment degradation
- (b) Engineering procedure ensures that configuration control of insulation and coatings inside containment are maintained

These mitigative measures are already in place and minimize the risk of degraded ECCS and CSS functions during the extension period and has enough margin to account for uncertainties.

3.3 Generic Letter 2004-02 Basis for Continued Operation

The NRC staff provided a justification for continued operation as discussed in GL 2004-02 that justifies continued operation of PWRs through December 31, 2007. Based on the mitigative measures identified above, which include, in part, the installation of the sump screens and procedurally required operator actions to mitigate sump blockages, continued operation beyond December 31, 2007 to May 24, 2008 is justified.

Attachment 2

W3F1-2007-0051

List of Regulatory Commitments

List of Regulatory Commitments

The following table identifies those actions committed to by Entergy in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

COMMITMENT	TYPE (Check One)		SCHEDULED COMPLETION DATE (If Required)
	ONE- TIME ACTION	CONTINUING COMPLIANCE	
Complete GSI-191 analysis for W-3 and complete the following: (a) Fuel downstream effects analysis expected in spring 2008 (b) Issue strainer certification/qualification report expected in spring 2008 (based on analysis completion)	x /		RFO15 restart
Update licensing basis to reflect resolution of GSI-191 issues for W-3	x		60 days after completion of RFO15