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OCAN080602

August 23, 2006

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

Subject: Generic Letter 2004-02 Extension Request  
and Commitment Revision  
Arkansas Nuclear One – Units 1 and 2  
Docket Nos. 50-313 and 50-368  
License Nos. DPR-51 and NPF-6

Dear Sir or Madam:

By letters dated August 31, 2005 (OCAN080501) and December 15, 2005 (OCAN120504), Entergy provided a response to Generic Letter (GL) 2004-02, *Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors* (OCNA090401), for Arkansas Nuclear One (ANO). In the August 31, 2005, correspondence, Entergy committed to plant modifications to install new sump strainers during the fall of 2006 for ANO-2 and the spring of 2007 for ANO-1 refueling outages. Entergy also committed to evaluating the adequacy of the strainer design and to address chemical effects once test results to quantify chemical debris effect on head-loss have been completed. In the December 15, 2005, correspondence Entergy provided the results of the downstream effects evaluation and stated that further evaluations are being performed in order to arrive at an acceptable resolution. The purpose of this submittal is to request a partial extension of our commitments.

Entergy has been closely involved with the industry efforts to resolve chemical and downstream effects issues and has ongoing actions to resolve these issues. Entergy is continuing with plans to install new sump strainers that are sized to accommodate debris loading from fiber, coatings, particulates, and latent debris during the upcoming refueling outages for both of the ANO units as previously described in the August 31, 2005, correspondence. The ANO-2 strainer has been designed and tested for debris loading and will be installed this fall. The ANO-1 strainer is currently being designed and will be tested for debris loading in the near future and installed in the spring of 2007. The new sump strainers are being designed with significantly increased surface area over the current designs.

Currently there is uncertainty associated with the quantities of chemical precipitant generated and their impact on the sump strainers. While Entergy is actively pursuing a standard test protocol to be used to test sump strainer performance, these standards

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appear to be several months away from finalization. The lack of this standard test protocol precludes definitive testing from being performed in the near term. Therefore, Entergy is currently unable to ensure the sump strainer modifications that will be installed this fall on ANO-2 and next spring on ANO-1 will be capable of fully addressing the issues that could impact sump performance as described in GL 2004-02.

The ANO-1 and ANO-2 sump strainers are being designed to minimize bypass flow, to reduce downstream effects, and to provide a substantial increase in available strainer area. The current ANO-2 screen area is approximately 150 ft<sup>2</sup>, and the new engineered strainer area being installed in the fall of 2006 is approximately 4800 ft<sup>2</sup>. The current ANO-1 screen area is approximately 200 ft<sup>2</sup>, and the new engineered strainer area being installed in the spring of 2007 is expected to be approximately 2500 ft<sup>2</sup> to 3500 ft<sup>2</sup>. Due to significant interferences inside the ANO-1 reactor building (reactor coolant system drain piping, decay heat system piping, structural and radiation shielding walls, etc.) which limit the available floor space for the placement of the sump strainer modules, it may not be possible to fully accommodate the debris loading that was determined in accordance with GL 2004-02 during the spring 2007 outage. The ability of the ANO-1 design to accommodate debris loading will not be known until the full-scale head-loss testing has been completed.

Entergy has a high degree of confidence that the new strainers to be installed in the ANO units' sumps will be effective in addressing the issues identified in GL 2004-02; however, Entergy cannot, at this time, assure full resolution of the issues. Chemical effects testing protocols are not sufficiently defined at this time to conduct testing, but the design and fabrication of the strainers must proceed in order to support timely strainer installation. In addition, the downstream effects testing necessary to determine strainer bypass with a plant-specific debris mix will not be completed in time to perform modifications that may be necessary.

Based on the current plans, Entergy anticipates chemical and downstream effects testing to be performed in 2007. If, as a result of this testing, it is determined that the sump strainers are not in themselves sufficient to entirely address the issues identified in GL 2004-02, further modifications will be implemented. These modifications may take the form of buffer elimination/change out, insulation removal, further sump modification, downstream component replacement, etc. Until testing is completed, the need for additional modifications will not be known. If future modifications are necessary, it is unlikely that they will be identified before late 2007. Given this schedule and the time required to design and procure components necessary for the modification, the earliest date for installation would be the spring 2008 for ANO-2 and fall of 2008 for ANO-1. By the spring of 2007 the risk of sump blockage and downstream effects will have been substantially reduced by the installation of new sump strainers in both of the ANO units.

Given these factors, Entergy believes it prudent to request a partial extension and revise the previous commitments to fully resolve the chemical and downstream effects issues by the modifications planned for the upcoming refueling outages. Entergy will proceed with current plans to install strainer modifications in the sumps for both of the ANO units during the upcoming refueling outages, and requests NRC approval to resolve chemical effects, downstream effects, and final head-loss during the subsequent outages in the spring 2008 for ANO-2 and fall of 2008 for ANO-1 at the earliest.

In addition to the plant modifications described above, current mitigative measures in response to NRC Bulletin 2003-01, *Potential Impact of Debris Blockage on Emergency*

*Sump Recirculation at Pressurized-Water Reactors (OCNA060301)*, are in place and continue to be in effect. By letter dated December 29, 2005 (OCNA120513), 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 emergency core cooling system and containment spray system recirculation functions were responsive to and met the intent of Bulletin 2003-01.

Attachment 1 provides a projected milestone schedule. Entergy's plans are consistent with the criteria provided in SECY-06-0078 and are also consistent with the conclusions made by the Advisory Committee on Reactor Safeguards in a letter dated March 24, 2006 (ACRSR-2181), in which they endorsed immediate plans to increase the size of the sump screens because this will alleviate the potential for excessive head-loss and recognized that this action by itself may not be sufficient to resolve all long-term core cooling issues.

Entergy requests approval of the proposed request by September 23, 2006.

New commitments contained in this submittal are summarized in Attachment 2. Should you have any questions concerning this submittal, please contact Ms. Natalie Mosher at (479) 858-4635.

I declare under penalty of perjury that the foregoing is true and correct. Executed on August 23, 2006.

Sincerely,



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Thomas A. Marlow  
Director, Nuclear Safety Assurance

TAM/nbm

Attachments

cc: Dr. Bruce S. Mallett  
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**Attachment 1**

**OCAN080602**

**Milestone Schedule**

GL 2004-02 Milestone Schedule

<u>Milestone</u>	<u>Date</u>
<b>Chemical Effects Topical WCAP 16530-NP submitted to NRC</b>	<b>March 2006</b>
ANO-2 Head Loss Testing	Spring 2006
<b>Downstream Effects Topical WCAP 16406-P submitted to NRC</b>	<b>May 2006</b>
<b>Alternate Buffer Topical WCAP 16596-NP issued by PWROG for comment</b>	<b>June 2006</b>
<b>Chemical Effects Topical WCAP 16530-NP NRC RAIs</b>	<b>Summer 2006</b>
<b>USA/STAR and Areva Jet Impingement Coatings Testing Report</b>	<b>July 2006</b>
ANO-1 Head Loss Testing	Fall 2006
ANO-2 Strainer Installation	Fall 2006
ANO-2 Supplemental Submittal (RAIs)	December 2006
<b>Downstream Effects Topical WCAP 16406-P SE</b>	<b>Spring 2007</b>
ANO-1 Strainer Installation	Spring 2007
<b>Chemical Effects Topical WCAP 16530-NP SE</b>	<b>May 2007</b>
ANO-1 Supplemental Submittal (RAIs)	Spring 2007
ANO-2 Chemical Effects Testing	Summer 2007
ANO-1 Chemical Effects Testing	Summer 2007
ANO-2 Downstream Effects Final Evaluation/Testing	Summer 2007
ANO-1 Downstream Effects Final Evaluation/Testing	Fall 2007
<b>Generic Fuel Evaluations Completed</b>	<b>December 2007</b>
ANO-2 Final Chemical/Downstream Effects and Head-loss Resolution	Spring 2008
ANO-1 Final Chemical/Downstream Effects and Head-loss Resolution	Fall 2008

**Note: Bold indicates generic industry efforts**

**Attachment 2**

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**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	
Entergy will resolve chemical effects, downstream effects, and final head-loss.	X		Spring 2008 (ANO-2)
			Fall of 2008 (ANO-1)