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PG&E Letter DCL-06-107

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

Docket No. 50-275, OL-DPR-80  
Docket No. 50-323, OL-DPR-82  
Diablo Canyon Units 1 and 2

Supplemental Response to Requested Information Part 2 of NRC Generic Letter  
2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During  
Design Basis Accidents at Pressurized-Water Reactors"

Dear Commissioners and Staff:

This letter supplements Pacific Gas and Electric Company's (PG&E) initial response to Generic Letter (GL) 2004-02, Part 2, submitted by PG&E Letter DCL-05-099, "Response to Requested Information Part 2 of NRC Generic Letter 2004-02, 'Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors,'" dated September 1, 2005. In that letter PG&E stated that certain activities (e.g., confirmatory testing and analysis in support of resolving the issues raised by GL 2004-02) remained to be completed and that PG&E would submit a supplement addressing the open issues by September 1, 2006.

As described in SECY-06-0078, dated March 31, 2006, the industry has been developing an understanding of certain aspects of chemical and coating behavior in a post loss-of-coolant accident environment and establishing an acceptable methodology for evaluating downstream effects. Those industry efforts are ongoing. Although testing and evaluation are not yet complete, PG&E has decided to modify or replace its existing recirculation sump screens and make additional debris reduction modifications. A schedule extension of approximately five weeks will be needed for Diablo Canyon Power Plant (DCPP) Unit 2. A request for extension will be submitted by separate correspondence. The DCPP Unit 1 modifications are currently planned to be implemented during the Spring 2007 refueling outage.

The enclosure provides the completion status and current completion dates for the open issues identified in DCL-05-099.

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The NRC requested additional information in NRC Letter dated February 9, 2006, "Diablo Canyon Power Plant, Units 1 and 2, Request for Additional Information Re: Response to Generic Letter 2004-02, 'Potential Impact of Debris Blockage on Emergency Recirculation During Design-Basis Accidents at Pressurized-Water Reactor (TAC No. MC4682 and MC4683).'" PG&E will provide the requested additional information by separate correspondence in accordance with NRC Letter dated March 28, 2006, "Alternative Approach for Responding to the Nuclear Regulatory Commission Request for Additional Information Letter Re: Generic Letter 2004-02."

PG&E makes no regulatory commitments or revisions to regulatory commitments in this letter. If you have any questions or require additional information, please contact Stan Ketelsen at (805) 545-4720.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 1, 2006.

Donna Jacobs

jer/3664

Enclosure

cc: Edgar Bailey, DHS  
Terry W. Jackson  
Bruce S. Mallett  
Diablo Distribution  
cc/enc: Alan Wang

**Supplemental Response to Requested Information Part 2 of NRC Generic Letter 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors"**

This enclosure provides a supplemental response to Requested Information Part 2 of NRC Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," dated September 13, 2004.

Pacific Gas and Electric Company (PG&E) submitted its initial response to GL 2004-02, Part 2, in PG&E Letter DCL-05-099, "Response to Requested Information Part 2 of NRC Generic Letter 2004-02, 'Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors,'" dated September 1, 2005. In that letter PG&E stated that certain activities (e.g., confirmatory testing and analysis in support of resolving the issues raised by GL 2004-02) remained to be completed and that PG&E would submit a supplement addressing the open issues by September 1, 2006.

The open issues remaining on September 1, 2005, were summarized in DCL-05-099, Enclosure 1, in a table of corrective actions and a table of modifications showing target completion dates. These tables are reproduced below with the addition of a third column showing the current completion date, where applicable.

**Status of Issues That Were Open on September 1, 2005**  
(Reference DCL-05-099, Enclosure 1)

<b>Corrective Action Description</b>	<b>Target Completion Date</b>	<b>Current Completion Date</b>
1. Finalize the analyses for a. Debris generation, b. Debris transport c. Head Loss d. Downstream effects, e. Upstream effects	December 31, 2005	Unit 1 - 1R14 <sup>1</sup> Unit 2 - 2R14 <sup>2</sup>
2. Revise the minimum sump level calculation (N-227, Revision 3), to address minor discrepancies discovered during the review process.	December 31, 2005	Complete

<sup>1</sup> Unit 1 Refueling Outage No. 14 scheduled to start April 30, 2007.

<sup>2</sup> Unit 2 Refueling Outage No. 14 scheduled to start February 4, 2008.

Corrective Action Description	Target Completion Date	Current Completion Date
<p>3. Perform transport studies to reduce the amount of debris transported to the recirculation sump screens in order to increase margin. During recent flume testing it was made evident that inorganic zinc (IOZ) readily sinks to the bottom of the test flume and a substantial portion of the IOZ assumed to reach the screen in the transport analysis would not be expected to reach the recirculation sump screens. Also, perform testing to determine the size distribution of calcium silicate insulation within the zone of influence (ZOI) and quantify erosion characteristics for calcium silicate and Marinite™ insulation pieces that may be subjected to erosion within the transport pool.</p>	<p>September 1, 2006</p>	<p>IOZ transport studies have been determined not to be needed.</p> <p>Testing to determine size distribution of calcium silicate is complete.</p> <p>Testing to quantify erosion characteristics for calcium silicate and Marinite™ is scheduled to be completed by December 31, 2006.</p>
<p>4. Perform testing to demonstrate the effectiveness and to refine the design of the debris interceptors. Debris interceptors are required to reduce the debris that reaches the recirculation screen.</p>	<p>April 1, 2006</p>	<p>Complete</p>
<p>5. Conduct a test of coatings within the ZOI. A test is planned to be conducted by Wyle Laboratory as a sub-contractor to Westinghouse. The purpose of the test is to demonstrate that the ZOI for coatings may be defined using a radius of 5D (5 times the diameter of the break pipe) versus the 10D as currently recommended in NEI 04-07.<sup>3</sup></p>	<p>May 1, 2006</p>	<p>Complete</p>

<sup>3</sup> 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 Generic Letter 2004-02," Revision 0, dated December 2004.

Corrective Action Description	Target Completion Date	Current Completion Date
6. Update the head loss analysis to reflect the results of chemical effects head loss testing and analysis	March 31, 2006	Unit 1 - 1R14 Unit 2 - 2R14
7. Submit a license amendment request for a change to the refueling water storage tank (RWST) Technical Specification (TS) based on Calculation N-227, if analysis indicates a higher water level is necessary. RWST level is currently administratively maintained at a higher level than required by TS.	December 31, 2005	A license amendment is not required. The revision to Calculation N-277 showed the RWST TS water level is adequate.
8. Validate the structural capability of the sump	June 30, 2006	Unit 1 - 1R14 Unit 2 - 2R14
9. Update TS Bases 3.5.2.8 regarding sump and trash rack inspections.	March 30, 2006	Unit 1 - 1R14 Unit 2 - 2R14
10. Complete design, operational, and procedural modifications.	December 31, 2007	Unit 1 - 1R14 Unit 2 - 2R14
11. Complete Region 2 analysis to support use of NEI 04-07 Section 6 "Alternate Evaluation" methodology.	July 1, 2006	Unit 1 - 1R14 <sup>4</sup> Unit 2 - Not applicable
12. Perform confirmatory latent debris sampling on Unit 1.	Unit 1 Refueling Outage 13 (Fall 2005).	Complete
13. Implement Containment Latent Debris Assessment Program.	December 31, 2007	Unit 1 - 1R14 Unit 2 - 2R14

<sup>4</sup> Steam generators are scheduled for replacement during 2R14 and Unit 1 Refueling Outage No. 15 scheduled to start January 26, 2009, (1R15) resulting in a significant reduction in calcium silicate. Use of "Alternate Evaluation" methodology will not be needed for Unit 2 and will be obviated for Unit 1 when it enters 1R15.

Modification Description	Target Implementation Schedule	Revised Completion date
1. Modify the residual heat removal suction inlet screen at the 88-foot elevation.	Unit 1 - Spring 2007 Unit 2 - Spring 2006	Unit 1 - 1R14 Unit 2 - Complete
2. Relocate or modify the temporary storage rack in the containment annulus (to reduce debris transport).	Unit 1 - Spring 2007 Unit 2 - Spring 2006	Cancelled. Computational fluid dynamics analysis shows rack does not block flow.
3. Modify the reactor cavity door and curb (to allow more debris to be trapped in the reactor cavity inactive sump).	Unit 1 - Spring 2007 Unit 2 - Spring 2006	Unit 1 - 1R14 Unit 2 - Complete Note: curb modification is not needed at this time.
4. Add two, approximately 18-inch high, perforated plate debris interceptors at the entrances to the labyrinth walkway leading to Door 277 in the crane wall (to capture reflective metal insulation and unqualified coating paint chips).	Unit 1 - Spring 2007 Unit 2 - Spring 2006	Design changed to one interceptor in Door 277. Unit 1 - 1R14 Unit 2 - 2R14