



**Pacific Gas and  
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January 05, 2011

PG&E Letter DCL-11-004

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

10CFR 50.73

Docket No. 50-275, OL-DPR-80

Diablo Canyon Unit 1

License Event Report 1-2011-001-00: Mode Transition With Turbine-Driven Auxiliary  
Feedwater Pump 1-1 Inoperable

Dear Commissioners and Staff:

In accordance with 10 CFR 50.73(a)(2)(i)(B), Pacific Gas and Electric Company is submitting the enclosed licensee event report regarding an improper mode transition with an inoperable turbine-driven auxiliary feedwater pump and a failure to meet Technical Specification 3.0.4.

In addition, this event is being reported under 10 CFR 50.73(a)(2)(ii)(B) and 10 CFR 50.73(a)(2)(v)(B).

There are no new or revised regulatory commitments in this report.

This event did not adversely affect the health and safety of the public.

Sincerely,

James R. Becker

dnpo/2246/50368618

Enclosure

cc/enc: Elmo E. Collins, NRC Region IV  
Michael S. Peck, NRC Senior Resident Inspector  
Alan B. Wang, NRR Project Manager  
INPO  
Diablo Distribution

**LICENSEE EVENT REPORT (LER)**  
(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. FACILITY NAME</b> Diablo Canyon Power Plant Unit 1	<b>2. DOCKET NUMBER</b> 05000 275	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Mode Transition With Turbine-Driven Auxiliary Feedwater Pump 1-1 Inoperable

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
11	06	2010	2011	1	0	01	05	2011	FACILITY NAME	DOCKET NUMBER
										05000
										05000

<b>9. OPERATING MODE</b> 3	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)									
<b>10. POWER LEVEL</b> 000	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)						
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)						
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)						
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)						
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)						
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)						
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)						
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER						
<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A							

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME Thomas R. Baldwin, Manager, Regulatory Services	TELEPHONE NUMBER (Include Area Code) (805) 545-4720
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**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
B	BA	0065	W290	N					

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input checked="" type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH: 03, DAY: 06, YEAR: 2011
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On January 3, 2011, PG&E identified that turbine-driven auxiliary feedwater pump 1-1 (TD AFW PP 1-1) was found to be inoperable in Mode 3 on November 6, 2010, due to an improperly set speed governor. The TD AFW PP 1-1 governor had been replaced on October 27, 2010, prior to entry into Mode 3. The TD AFW PP 1-1 post maintenance test (PMT) required steam generator pressure to be greater than 650 psig, necessitating entry into Mode 3 to perform the test. This testing and adjustment was performed on November 6, 2010. On January 3, 2011, plant staff reviewing the PMT and the governor adjustment performed on November 6, 2010, identified that the TD AFW PP 1-1 as-found condition exceeded 4,300 rpm. This initial speed was greater than the engineering-established acceptance criteria of 4,260 rpm for surveillance testing of the pump. PG&E determined that TD AFW PP 1-1 was consequently inoperable during the mode transition from Mode 4 to Mode 3.

Technical Specification Limiting Condition for Operation (TS LCO) 3.7.5 requires three trains of AFW to be operable in Modes 1 through 3. Technical Specification LCO 3.0.4 is not applicable. With TD AFW PP 1-1 inoperable during the Mode transition, entry into Mode 3 without TS LCO 3.7.5 being met constitutes a violation of TS LCO 3.0.4.

Due to the recent discovery of this condition, the cause and corrective action(s) for this event are pending investigation.

**LICENSEE EVENT REPORT (LER) U.S. NUCLEAR REGULATORY COMMISSION  
CONTINUATION SHEET**

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**NARRATIVE**

**I. Plant Conditions**

When the event occurred, Unit 1 was transitioning from Mode 4 (Hot Shutdown) to Mode 3 (Hot Standby). The reactor coolant system temperature and pressure at this time were approximately 350 degrees Fahrenheit and 1,000 psig respectively, and steam generator pressure was approximately 115 psig. At the time of testing, the steam generator pressure was approximately 1,000 psig.

**II. Description of Problem**

**A. Background**

The Diablo Canyon Power Plant (DCPP) Unit 1 is a Pressurized Water Reactor (PWR) with four Reactor Coolant Loops (RCL)[AB] to circulate reactor coolant to each of the four steam generators (SGs). Each SG is a vertical U-tube design provided by the Nuclear Steam Supply System (NSSS) vendor, Westinghouse. The auxiliary feedwater (AFW) system [BA] is a safety-related system that serves as a backup supply of feedwater to the secondary side of the SG. It maintains the heat sink function of the SGs whenever the main feedwater (MFW) system is unavailable.

The AFW system consists of three AFW supply trains. One train employs a full capacity, approximately 800 gpm steam turbine-driven AFW Pump 1-1 (TD AFW PP 1-1), aligned to all four SGs. The other two trains consist of half-capacity motor-driven AFW pumps, AFW Pump 1-2 and AFW Pump 1-3, each supplying approximately 400 gpm to two of the four SGs, with the capability to be manually aligned to any of the four generators. The normal operation of the AFW system, which is during unit startup and shutdown, is to supply the SGs with a secondary heat sink while main feedwater is unavailable.

Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.5, "Auxiliary Feedwater System," requires three AFW trains to be OPERABLE in Modes 1, 2, and 3. TS 3.7.5 LCO is modified by a note stating that LCO 3.0.4b is not applicable. Under Surveillance Requirement SR 3.7.5.2, testing of the TD AFW PP 1-1 is required to be performed within 24 hours after reaching 650 psig steam pressure in the steam generators.

LCO 3.0.4 states that when an LCO is not met, entry into a Mode or other specified condition in the Applicability shall only be made:

- a. When the associated Actions to be entered permit continued operation in the Mode or other specified condition in the Applicability for an unlimited period of time;
- b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the Mode or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or
- c. When an allowance is stated in the individual value, parameter, or other Specification.

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**NARRATIVE**

**B. Event Description**

On October 27, 2010, during the 1R16 refueling outage, Maintenance completed replacement of the governor and servo on the TD AFW PP 1-1. At 0512 PST on November 6, 2010, Unit 1 entered Mode 3.

On November 6, 2010, at 2222 PST, DCPD commenced Surveillance Test Procedure (STP) P-AFW-11, "Routine Surveillance Test of Turbine-Driven Auxiliary Feedwater Pump 1-1." This procedure was also used with a maintenance procedure to set the speed of the governor, with support from Maintenance personnel, and also served as post-maintenance testing (PMT) for TD AFW PP 1-1. When steam was admitted to TD AFW PP 1-1 to raise the speed, test personnel observed speeds in excess of 4,300 rpm, at which point the governor had still not assumed control. Maintenance personnel made internal adjustments to the governor in order to achieve a pump speed below 4,260 rpm (the maximum allowable recirculation speed stated in the surveillance procedure). After the adjustments, the pump reached a recirculation speed of 4,210 rpm. The test was completed satisfactorily and the TD AFW PP 1-1 was secured on November 7, 2010, at 0026 PST.

**C. Other Systems or Secondary Functions Affected**

No additional safety systems were adversely affected by this event.

**D. Method of Discovery**

The condition was discovered on January 3, 2011 when it was recognized that TD AFW PP 1-1 had excessive pump speed prior to governor adjustment.

**E. Status of Inoperable Structures, Systems, or Components that Contributed to the Event**

When the pump recirculation speed exceeded 4,300 rpm without governor intervention, TD AFW PP 1-1 was considered inoperable because it operated at a speed outside the band specified in the test procedure and in DCPD's Final Safety Analysis Report (FSAR). Motor-driven AFW pumps 1-2 and 1-3 remained operable during this event.

**F. Operator Actions**

Operations utilized Maintenance support to adjust pump speed within an acceptable range.

**G. Safety System Responses**

Not applicable for this event.

U.S. NUCLEAR REGULATORY COMMISSION

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**NARRATIVE**

**III. Cause of the Problem**

To be provided in the supplemental report.

**IV. Assessment of Safety Consequences**

To be provided in the supplemental report.

**V. Corrective Actions**

**A. Immediate Corrective Actions**

Operations utilized Maintenance support to adjust pump speed within an acceptable range.

**B. Corrective Actions to Prevent Recurrence (CAPR)**

To be provided in the supplemental report.

**VI. Additional Information**

**A. Failed Components / Extent of Condition**

**B. Previous Similar Events**

**C. Industry Reports**

To be provided in the supplemental report.