



**Pacific Gas and  
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PG&E Letter DCL-12-009

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

10 CFR 50.73

Docket No. 50-275, OL-DPR-80  
Docket No. 50-323, OL-DPR-82  
Diablo Canyon Units 1 & 2  
Licensee Event Report 1-2011-006-01  
Diablo Canyon Power Plant - Loss of Control Room Envelope Integrity

Dear Commissioners and Staff;

Pacific Gas and Electric Company (PG&E) submits the enclosed Licensee Event Report (LER) supplement regarding loss of control room envelope integrity. Both units are impacted by this issue. PG&E is submitting this LER supplement in accordance with 10 CFR 50.73(a)(2)(ii)(B) and 50.73(a)(2)(v)(D) and providing the cause and corrective actions for the event.

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

This event resulted in an insignificant increase in radiological risk to the control room operators.

Sincerely,

James R. Becker

mlpy/50424481, task 30

Enclosure

cc/enc: Elmo E. Collins, NRC Region IV  
Michael S. Peck, NRC Senior Resident Inspector  
Alan 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 Unit 1	<b>2. DOCKET NUMBER</b> 05000 275	<b>3. PAGE</b> 1 OF 4
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**4. TITLE**  
Loss of Control Room Envelope Due to the Work Control Shift Foreman Incorrectly Authorizing Removal of a Blank Flange

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
08	29	2011	2011	6	1	01	27	2012	Diablo Canyon Unit 2	05000 323
									FACILITY NAME	DOCKET NUMBER
										05000

<b>9. OPERATING MODE</b> 1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> (Check all that apply)										
	<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)							
<b>10. POWER LEVEL</b> 100	<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 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 type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" 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 L. Mark Padovan - Regulatory Services Supervisor	TELEPHONE NUMBER (Include Area Code) (805) 545-4540
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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>14. SUPPLEMENTAL REPORT EXPECTED</b>	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO				

**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On August 29, 2011, at 1724 PDT, an operator attempted to reposition Unit 2 Control Room Ventilation System (CRVS) Dampers MOD-2 and MOD-2A using the CRVS mode switch in the control room, but was unable to do so. During a follow-up investigation, at about 2230 PDT, plant operators discovered that the integrity of the Units 1 and 2 common control room envelope (CRE) boundary was lost due to maintenance personnel removing a blank flange on the inlet duct to Dampers MOD-2 and MOD-2A with the dampers still inoperable (in mid-position). This condition is contrary to the requirements of Technical Specification (TS) 3.7.10 "Control Room Ventilation System (CRVS)." Maintenance personnel reinstalled the blank flange on August 30, 2011, at 0110 PDT.

On August 30, 2011, at 1404 PDT, Pacific Gas and Electric Company made a late 8-hour nonemergency report (Reference NRC Event Notification 47223) under 10 CFR 50.72(b)(3)(ii)(B) and (b)(3)(v)(D). Plant personnel entered this late notification into the Diablo Canyon Nuclear Power Plant corrective action system.

The cause was human error by the work control shift foreman when he prematurely authorized removal of the blank flange prior to all work being complete. Insufficient controls existed to assure CRE integrity was maintained during maintenance. Corrective actions included personnel coaching, revising or creating clearances, and separate maintenance procedures for working on control room ventilation.

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**CONTINUATION SHEET**

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		2011	- 006	- 01	

**NARRATIVE**

**I. Plant Conditions**

At the time of discovery, Units 1 and 2 were in Mode 1 (Power Operation) at approximately 100 percent power.

**II. Description of Problem**

**A. Background**

The Control Room Ventilation System (CRVS) provides a protected environment from which operators can control the units from the common control room following an uncontrolled release of radioactivity, hazardous chemicals, or smoke. The CRVS consists of two independent, redundant trains that recirculate and filter the air in the common control room envelope (CRE), and a CRE boundary that limits the inleakage of unfiltered air (one CRVS train from each unit).

The CRVS is an emergency system, parts of which may also operate during normal unit operations. Upon receipt of an actuating signal, the normal air supply to the CRE is isolated, and the stream of outside ventilation air from the pressurization system and recirculated control room air is passed through a system filter. The pressurization system draws outside air from either the north end or the south end of the turbine building based upon the wind direction or the absence of releases at the inlet. The prefilters remove any large particles in the air, to prevent excessive loading of the high-efficiency particulate air filters and charcoal adsorbers [ADS].

The CRVS is designed to maintain a habitable environment in the Units 1 and 2 common CRE for the duration of the most severe Design Basis Accident without exceeding a 5 rem whole body dose or its equivalent to any part of the body. This basis is consistent with General Design Criteria 19, dated 1971.

**B. Event Description**

On August 29, 2011, at about 1130 PDT, prior to reporting off a clearance to perform maintenance on Unit 2 Control Room Dampers MOD-2 and MOD-2A, maintenance personnel received permission from the Work Control Shift Foreman (WCSF) to remove the blank flange from the inlet duct [DUCT] to the dampers [CDMP]. This blank flange was maintaining the integrity of the CRE boundary while Dampers MOD-2 and MOD-2A were inoperable during maintenance. At about 1400 PDT, plant personnel completed maintenance on Unit 2 Control Room Dampers MOD-2 and MOD-2A and planned on performing static testing of the CRE the next morning.

At about 1724 PDT, an operator attempted to reposition the dampers from the control room, but was unable to do so. During a follow-up investigation, at about 2230 PDT, operators determined that the flange had been removed prematurely and Dampers MOD-2 and MOD-2A were still inoperable awaiting stroke testing by electrical maintenance. Maintenance personnel reinstalled the flange on August 30, 2011, at 0110 PDT to meet the required actions associated with Technical Specification (TS) 3.7.10.B. The loss of CRE boundary created an unanalyzed condition that could have prevented the CRVS from mitigating the exposure of control room personnel to the consequences of an accident.

On August 30, 2011, at 1404 PDT, Pacific Gas & Electric (PG&E) made a late 8-hour nonemergency report (Reference NRC Event Notification 47223) under 10 CFR 50.72(b)(3)(ii)(B) and (b)(3)(v)(D). Plant personnel entered this late notification into the Diablo Canyon Nuclear power Plant (DCPP) corrective action system.

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**NARRATIVE**

**C. Status of Inoperable Structure, Systems, or Components That Contributed to the Event**

CRVS Dampers MOD-2 and MOD-2A were inoperable in mid-position.

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

Inoperability of the CRE rendered both Units 1 and 2 CRVS trains inoperable. However, the CRVS trains remained capable of performing their normal ventilation functions.

**E. Method of Discovery**

An operator attempted to reposition the dampers from the control room, but was unable to do so.

**F. Operator Actions**

Plant Personnel took the required actions associated with TS 3.7.10.B and reinstalled the blank flange on August 30, 2011, at 0110 PDT.

**G. Safety System Responses**

None.

**III. Cause of the Problem**

**A. Immediate Cause**

Control room boundary integrity was lost due to maintenance personnel removing a blank flange on the inlet duct to the Unit 2 CRVS Dampers MOD-2 and MOD-2A with the dampers still inoperable and in mid-position.

**B. Cause**

The cause was human error by the work control shift foreman when he prematurely authorized removal of the blank flange prior to all work being complete. Insufficient controls existed to assure that the CRE integrity was maintained during maintenance.

**IV. Assessment of Safety Consequences**

Maintenance personnel removed the blank flange from the upstream side of Dampers MOD-2 and MOD-2A for about 12 hours. During this time, the ability of the CRVS to protect operators from a post-accident release of airborne radiation was compromised. However, the probability that a core-damaging accident could occur and require actuation of the pressurization mode of control room ventilation during this period of time was extremely low (less than 1E-07 during the 12-hour window). Therefore, this event resulted in an insignificant increase in radiological risk to the control room operators.

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**NARRATIVE**

**V. Corrective Actions**

**A. Immediate Correction Actions**

A clearance was created for CRVS Dampers MOD-2 and MOD-2A to track the removal of the blank flange.

**B. Corrective Actions**

The WCSF was coached and the PG&E personal accountability process applied. PG&E also took the following actions:

- Revised or created individual clearances for the installation and removal of CRVS blank flanges for associated dampers.
- Maintenance instructions were added or enhanced stating that CRVS blank flanges shall not be removed until the shift foreman has determined that all affected equipment is operable and authorizes removal of the flanges.
- Separate maintenance instructions were created to control the installation or removal of CRVS blank flanges that render the system inoperable.
- A new procedure will be created for maintenance on control room ventilation.

**VI. Additional Information**

**A. Failed Components**

All components functioned as designed.

**B. Previous Similar Events**

There are no examples of previous similar events at DCP.