



**Pacific Gas and  
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March 2, 2015

PG&E Letter DCL-15-033

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

10 CFR 50.73

Docket No. 50-275, OL-DPR-80  
Diablo Canyon Unit 1  
Licensee Event Report 2015-001-00, Both Trains of Residual Heat Removal  
Inoperable Due to Circumferential Crack on a Socket Weld

Dear Commissioners and Staff:

Pacific Gas and Electric Company (PG&E) submits the enclosed Licensee Event Report (LER) regarding an event or condition that could have prevented fulfillment of a safety function when both trains of the residual heat removal system were declared inoperable due to a circumferential crack on a socket weld. PG&E is submitting this LER in accordance with 10 CFR 50.73(a)(2)(v), and 50.73(a)(2)(vii).

This is the initial LER submittal. PG&E will submit a supplemental LER describing the event cause and corrective actions no later than May 8, 2015.

PG&E makes no new or revised regulatory commitments (as defined by NEI 99-04) in this report.

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

Sincerely,

James M. Welsch

APH8/6470/50680117

Enclosure

cc\enc: Marc L. Dapas, NRC Region IV Administrator  
Thomas R. Hipschman, NRC Senior Resident Inspector  
Siva P. Lingam, NRR Project Manager  
INPO  
Diablo Distribution

**LICENSEE EVENT REPORT (LER)**(See Page 2 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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [Infocollects.Resource@nrc.gov](mailto:Infocollects.Resource@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-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.

**1. FACILITY NAME**

Diablo Canyon Power Plant, Unit 1

**2. DOCKET NUMBER**

05000 275

**3. PAGE**

1 OF 4

**4. TITLE**

Both Trains of Residual Heat Removal Inoperable Due to Circumferential Crack on a Socket Weld

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
12	31	2014	2015	- 001	- 00	03	02	2015	FACILITY NAME	DOCKET NUMBER
									FACILITY NAME	DOCKET NUMBER
									FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
3	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input checked="" 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 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)
10. POWER LEVEL  000	<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 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**

## LICENSEE CONTACT

Andrew Heffner, Regulatory Services Engineer

## TELEPHONE NUMBER (Include Area Code)

805-545-6470

**13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT**

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	BP	N/A	N/A	Y					

**14. SUPPLEMENTAL REPORT EXPECTED**☒ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☐ NO**15. EXPECTED SUBMISSION DATE**

MONTH	DAY	YEAR
05	08	2015

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

On December 31, 2014, while performing a walkdown as part of a surveillance test procedure, plant personnel identified through-wall seepage in a Diablo Canyon Power Plant Unit 1 socket weld inside containment that provides a flow path to a relief valve protecting a common portion of both trains of the residual heat removal system. Subsequent cleanup of the boric acid accumulation revealed active seepage of 30 drops per minute. A visual inspection identified that the source of the seepage was a circumferential crack on the socket weld.

This is the initial Licensee Event Report (LER) for this event. Pacific Gas & Electric will submit a supplemental LER describing event cause and corrective actions no later than May 8, 2015.

This condition did not have an adverse effect on the health and safety of the public.



**LICENSEE EVENT REPORT (LER)  
CONTINUATION SHEET**

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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [Infocollects.Resource@nrc.gov](mailto: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.

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Diablo Canyon Power Plant Unit 1	05000 275	2015	- 001	- 00	2 OF 4

**NARRATIVE****I. Reportable Event Classification**

This event is reportable pursuant to the following criteria:

- 10 CFR 50.73(a)(2)(v)(B&D), "Any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to: Remove Residual Heat and Mitigate the consequences of an accident"
- 10 CFR 50.73(a)(2)(vii), "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to : Remove Residual Heat, and Mitigate the consequences of an accident"

**II. Plant Conditions**

At the time of the event, Diablo Canyon Power Plant (DCPP) Unit 1 was in Mode 3 (Hot Standby) at normal operating reactor coolant temperature and pressure conditions.

**III. Problem Description****A. Background**

The function of the emergency core cooling system (ECCS) is to provide core cooling and negative reactivity to ensure that the reactor core is protected after any of the following accidents:

- a) loss-of-coolant accident, non-isolable coolant leakage greater than the capability of the normal charging system [CB]
- b) rod ejection accident
- c) loss-of-secondary-coolant accident, including uncontrolled steam release or loss of feedwater and
- d) steam generator tube rupture.

The addition of negative reactivity is designed primarily for the loss-of-secondary-coolant accident where primary cooldown could add enough positive reactivity to achieve criticality and return to significant reactor power. The ECCS consists of three separate subsystems: centrifugal charging (high head) [BQ], safety injection (intermediate head), and residual heat removal (RHR) (low head) [BP]. Each subsystem consists of 2 redundant, 100 percent capacity trains.

The design function of relief valve [RV] RHR-1-RV-8708 is to protect the RHR discharge piping from exceeding its design pressure rating. The inlet pipe to the valve is connected to a 12-inch RHR header line, which provides a flow path for injection to reactor coolant system (RCS) [AB] hot legs 1 and 2. This line is occasionally used to fill the reactor cavity during refueling outages. The normal flow path for shutdown cooling (Modes 4 and 5) does not use this line.

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**NARRATIVE**

**B. Event Description**

On December 31, 2014, while performing a walkdown as part of a surveillance test procedure, plant personnel identified an accumulation of boric acid on the inlet pipe to relief valve RHR-1-RV-8708. The problem was entered into the corrective action program. Subsequent cleanup of the boric acid accumulation revealed active seepage of 30 drops per minute (dpm). A visual inspection identified a circumferential crack on the socket weld.

The active boric acid leak was located on the common header from the RHR pump [P] discharge to RCS hot legs 1 and 2. The active boric acid seepage could not be isolated. Both trains of the RHR system were declared inoperable and Technical Specification (TS) 3.0.3 was entered on December 31, 2014, at 1105 PST. DCPD made an 8-hour notification to the NRC regarding an event or condition that could have prevented fulfillment of a safety function (NRC Event Notification Number 50711).

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

None.

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

None.

**E. Method of Discovery**

On December 31, 2014, while performing a walkdown as part of a surveillance test procedure, plant personnel identified an accumulation of boric acid on the inlet pipe to relief valve RHR-1-RV-8708. Subsequent cleanup of the boric acid accumulation revealed active seepage of 30 dpm. A visual inspection identified that the source of the leak was a circumferential crack on the socket weld.

**F. Operator Actions**

Operators declared both RHR trains inoperable. TS 3.0.3 was entered on December 31, 2014, at 1105 PST and was exited at 2256 PST, when the plant entered Mode 4. Additionally, in accordance with TS 3.6.3.C, the associated containment penetration flow path was isolated.

**G. Safety System Responses**

None.

**IV. Cause of the Problem**

Pacific Gas and Electric (PG&E) is conducting a root cause evaluation (RCE) and will submit a supplemental Licensee Event Report (LER) documenting the results of this investigation once it is complete.



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**NARRATIVE**

**V. Assessment of Safety Consequences**

DCCP assessed the Unit 1 risk significance of seepage in the vent line of the RHR supply line to the hot leg 1 and 2 supply lines. This assessment concluded that the incremental conditional core damage probability was less than 1.0E-06 per year. Therefore, this event is not considered risk significant and did not adversely affect the health and safety of the public.

**VI. Corrective Actions**

**A. Immediate Actions**

1. Performed piping repair on cracked socket weld.
2. Installed permanent pipe support.

**B. Other Corrective Actions**

Once the associated RCE is complete, PG&E will take corrective actions as necessary, and describe the additional corrective actions in the supplemental LER.

**VII. Additional Information**

**A. Failed Components**

DCCP discovered a circumferential crack on the socket weld on the inlet to relief valve RHR-1-RV-8708.

**B. Previous Similar Events**

"Unit 1 Licensee Event Report 2013-005-00, Both Trains of Residual Heat Removal Inoperable Due to Circumferential Crack on a Socket Weld," dated August 22, 2013, is similar to this event.

**A. Industry Reports**

None.