



*Pacific Gas and
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PG&E Letter DCL-01-079

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

Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2
Licensee Event Report 2-2001-003-00
Technical Specification 3.3.3 Not Met Due to Inadequate Procedure

Dear Commissioners and Staff:

PG&E is submitting the enclosed licensee event report regarding Technical Specification 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," not met due to an inadequate procedure.

This event was not considered risk significant and did not adversely affect the health and safety of the public.

Sincerely,

David H. Oatley

cc: Ellis W. Merschoff
David L. Proulx
Girija S. Shukla
Diablo Distribution
INPO

Enclosure

GWH/2246/Q0012250

IE22

LICENSEE EVENT REPORT (LER)

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TITLE (4)
Technical Specification 3.3.3 Not Met Due to Inadequate Procedure

EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)					
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MO	DAY	YEAR	FACILITY NAME			DOCKET NUMBER			
05	30	2001	2001	- 0 0 3	- 0 0	07	27	2001							

OPERATING MODE (9) 2	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11) <input checked="" type="checkbox"/> 10 CFR 50.73(a)(2)(i)(B) <input type="checkbox"/> OTHER (SPECIFY IN ABSTRACT BELOW AND IN TEXT, NRC FORM 366A)
POWER LEVEL (10)	
0 0 0	

LICENSEE CONTACT FOR THIS LER (12)

Roger Russell - Senior Regulatory Services Engineer	TELEPHONE NUMBER
	AREA CODE: 805 NUMBER: 545-4327

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)	EXPECTED SUBMISSION DATE (15)	MON	DAY	YR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO			

ABSTRACT (Limit to 1400 spaces. i.e., approximately 15 single-spaced typewritten lines.) (16)

On May 23, 2001, at 15:23 PDT, Unit 2 transitioned from Mode 4 (Hot Shutdown) to Mode 3 (Hot Standby) and Technical Specification 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," became applicable. On May 26, 2001, the intent of TS 3.3.3 was not met when both containment hydrogen monitors (CELs 82 and 83) were improperly aligned for more than 72 hours.

PG&E discovered this event on May 30, 2001, while performing surveillance test procedure I-46A, "Containment Hydrogen Monitor Ch 82(83) Channel Calibration," on Unit 2 CEL 82. VAC-2-672, which isolates reagent gas from CELs 82 and 83, was identified in the closed position. The reagent gas is required for the CELs to work as designed. In an event requiring use of CELs 82 and 83 with the reagent gas isolated at VAC-2-672, the channels may not have been available in 30 minutes as discussed in DCP's Final Safety Analysis Report Update. Therefore, PG&E believes CELs 82 and 83 were inoperable since entry into Mode 3 on May 23, 2001.

This condition was caused by an inadequate procedure.

As immediate corrective action, VAC-2-672 was opened and the operability of CELs 82 and 83 restored on May 30, 2001.

As corrective action to prevent recurrence, Chemistry Analysis Procedure P-16, "Sampling of Containment Atmosphere Hydrogen on a Safety Injection," was revised to add a step to verify the correct alignment of VAC-2-672.

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TEXT

I. Plant Conditions

While the containment hydrogen monitors (CELs 82 and 83) [CHMA] were inoperable, the plant was transitioning from Mode 4 (Hot Shutdown) to Mode 1 (Power Operation) following Unit 2's tenth refueling outage (2R10).

II. Description of Problem

A. Background

The reagent gas is normally isolated from CELs 82 and 83 by closing the reagent gas bottle isolation valve [ISV] at the gas bottle. An inline valve (VAC-2-672) [ISV], which is located downstream and very close to the reagent gas bottle isolation valve, could also serve to isolate the reagent gas.

Chemistry Analysis Procedure (CAP) P-16, "Sampling of Containment Atmosphere Hydrogen on a Safety Injection," provides instructions for operating the containment hydrogen monitor analyzers CELs 82 and 83 for Units 1 and 2. The instructions require the operator to verify open the gas bottle isolation valve located at the bottle. It does not require verifying that VAC-2-672 is open.

Technical Specification (TS) 3.3.3, Required Action D.1, requires that when two containment hydrogen monitor channels are inoperable, one hydrogen monitor channel must be restored to operable status within 72 hours when the unit is in Modes 1, 2, and 3 or the unit must be in Mode 3 in 6 hours and be in Mode 4 in 12 hours. LCO 3.0.4 is not applicable.

Surveillance test procedure (STP) V-3T3, "Exercising of Containment H₂ Sample Valves and Containment H₂ External Recombiner Valves," is performed while the unit is in Mode 5 (Cold Shutdown) or Mode 6 (Refueling), and the hydrogen monitors are not required to be operable. When performing STP V-3T3, the reagent gas is isolated at the bottle as required by the procedure.

STP I-46A, "Containment Hydrogen Monitor Ch 82(83) Channel Calibration," is performed to calibrate the TS-required portion of CELs 82 and 83 using calibration gasses and to functionally verify other loop components. VAC-2-672, which is downstream of the gas bottle isolation valve and upstream of CELs 82 and 83, is required to be open.

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TEXT

Pressure switch (PS) [PS] 582(583) initiates an alarm, which alerts operators of a loss of reagent gas if the system had perceptible leaks. PS 582(583) provides an O₂ low-pressure alarm.

The DCCP Units 1 and 2 Final Safety Analysis Report (FSAR) Update, Section 6.2.5, addresses combustible gas control inside containment. FSAR Update, Table 6.2-45, provides a summary of hydrogen accumulation data. FSAR Update, Section 7.5.1.1.4, states that the containment hydrogen monitoring system will not normally be running but can be energized and operated within 30 minutes.

B. Event Description

On March 13, 2001, Unit 2 CEL 82 was successfully calibrated.

On April 29, 2001, Unit 2 was shut down for 2R10.

On April 30, 2001, Unit 2 CEL 83 was successfully calibrated.

On May 19, 2001, STP V-3T3 was completed. Although the procedure does not require manipulation of VAC-2-672, it is likely that VAC-2-672 was closed at this time because it is on the same line and in close proximity to the gas bottle isolation valve. STP V-3T3 does not have a step to reopen the gas bottle isolation valve or VAC-2-672. Since the valves were found closed, and there was no O₂ leak to reduce the line pressure, the operators would not have been aware of the inoperability of the channels via PS 582(583).

On May 23, 2001, at 15:25 PDT, Unit 2 transitioned from Mode 4 (Hot Shutdown) to Mode 3 (Hot Standby), and TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," became applicable.

On May 26, 2001, the intent of TS 3.3.3, Required Action D.1, was not met since both containment hydrogen monitors were later discovered to be isolated from the reagent gas at VAC-2-672 for more than 72 hours.

On May 30, 2001, while performing STP I-46A, PG&E discovered that CELs 82 and 83 were improperly aligned to the reagent gas bottle because valve VAC-2-672 had been closed, rendering both containment hydrogen monitor channels inoperable. Upon discovering the closed valve, operators reopened VAC-2-672 restoring CELs 82 and 83 to operable status.

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TEXT

CAP P-16 contained a step to verify open the reagent gas bottle isolation valve and check the pressure. In that step, a note stated to open the cylinder isolation valve, rather than the in-line valve (VAC-2-672), which should always remain open. In the case of an event requiring use of CELs 82 and 83, the channels may not have been available in 30 minutes, which is the basis for system operability, as discussed in the FSAR Update.

C. Inoperable Structures, Components, or Systems that Contributed to the Event

None.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

This condition was discovered by PG&E technicians while performing a channel calibration of Unit 2 CEL 82 in accordance with STP I-46A.

F. Operator Actions

None.

G. Safety System Responses

None.

III. Cause of the Problem

A. Immediate Cause

The reagent gas bottle to Unit 2 CELs 82 and 83 was isolated at VAC-2-672.

B. Root Cause

The intent of TS 3.3.3 was not met due to an inadequate procedure. The operators, lacking an explicit description of which reagent gas bottle isolation valve to operate (at the bottle or the valve in close proximity to

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TEXT

valve at the bottle), apparently closed the incorrect valve during performance of STP V-3T3.

C. **Contributory Cause**

None.

IV. **Analysis of the Event**

In the case of an event requiring use of CELs 82 and 83, CAP P-16 would have directed the technician to verify open the reagent gas bottle isolation valve and check the pressure. Because a note in this step informs the technician to open the gas bottle cylinder isolation valve only rather than the in-line valve (VAC-2-672) (since that valve should be open at all times), VAC-2-672 is assumed to be in the open position.

When the technician takes the CEL panel switch from Standby to Analyze, the pump will start. With the oxygen bottle isolated at VAC-2-672, PS 582(583) will initiate a low oxygen pressure alarm.

Due to the time required to troubleshoot the low-pressure alarm and identify the closed valve, it may have taken more than 30 minutes to place the hydrogen monitor channels in service, which is the basis for system operability in the DCP Unit 1 and 2 FSAR Update. However, because VAC-2-672 is located immediately above the reagent gas bottle isolation valve, PG&E believes that VAC-2-672 would have been verified open within a reasonable time (that is, less than an additional 30 minutes).

Although the FSAR Update assumes the containment hydrogen monitors are placed in service within 30 minutes following an accident, a delay of an additional 30 minutes would not have resulted in significant accumulation of hydrogen following a licensing basis loss-of-coolant accident such that a hydrogen explosion would occur. DCP Units 1 and 2 FSAR Update, Section 6.2.5.3.1.4, states that a 100-scfm hydrogen recombiner, started when the bulk containment hydrogen concentration reaches 3.5 percent by volume (after 3 days), or earlier, will ensure that the bulk containment hydrogen concentration will not reach the lower flammability limit of 4 percent by volume. FSAR Update, Table 6.2-45, "Summary of Hydrogen Accumulation Data," indicates that it would take 5 days from the time of occurrence for the hydrogen level to reach 3.83 percent by volume without recombination.

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TEXT

Therefore, the event:

- is of very low risk significance, based on an evaluation using the NRC's Significance Determination Process;
- did not adversely affect the health and safety of the public; and
- was not a Safety System Functional Failure.

V. Corrective Actions

A. Immediate Corrective Actions

On May 30, 2001, VAC-2-672 to CELs 82 and 83 was reopened and operability of CELs 82 and 83 restored.

B. Corrective Actions to Prevent Recurrence

CAP P-16, which provides instruction for the operation of containment hydrogen analyzer CELs 82 and 83 for Units 1 and 2, was revised to add a step to verify open valve VAC-2-672 located immediately above the reagent gas bottle isolation valve. Additionally, the note to open the reagent gas bottle isolation valve and not the in-line valve (VAC-2-672), was deleted. Unit 1 does not have a similar valve in the identical position.

VI. Additional Information

A. Failed Components

None.

B. Previous Similar Events

None.