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PG&E Letter DCL-02-007

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

Docket No. 50-275, OL-DPR-80
Diablo Canyon Unit 1
PAM Report 01-06 - Post Accident Monitoring (PAM) Instrumentation

Dear Commissioners and Staff:

PG&E is submitting the enclosed report in accordance with Technical Specification (TS) 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," and TS 5.6.8, "PAM Report."

PG&E committed to this supplemental PAM Report in PG&E letter DCL-01-128, dated December 10, 2001. This report contains the final cause analysis and corrective actions to prevent recurrence. Revision bars in the right hand column indicate the changes.

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

JMA/2245/A0545324

IE22

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Diablo Canyon Unit 1	0 5 0 0 0 2 7 5	1 OF 6

TITLE (4)

PAM Report 01-06 - Post Accident Monitoring (PAM) Instrumentation

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
11	07	2001	2001	- 0 0 4 -	0 1	01	18	2002		

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)	
1	X	10 CFR 50.73(a)(2)(i)(B)
POWER LEVEL (10)	X	OTHER TS 3.3.3 and TS 5.6.8
1 0 0	(SPECIFY IN ABSTRACT BELOW AND IN TEXT, NRC FORM 366A)	

LICENSEE CONTACT FOR THIS LER (12)

	TELEPHONE NUMBER	
	AREA CODE	
Roger Russell - Senior Regulatory Services Engineer	805	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	MON	DAY	YR
[ ] YES (If yes, complete EXPECTED SUBMISSION DATE)	[X] NO	SUBMISSION DATE (15)			

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

On November 7, 2001, with Unit 1 in Mode 1 (Power Operation) at 100 percent power, PG&E identified that Unit 1 Steam Generator Level Indicator, LI-528 Westinghouse model VX-252, was in a degraded condition with all four case to frame mounting screws missing. This condition could have prevented the indicator from performing its required function following a seismic event, as the case containing the indicator could slide horizontally within its enclosure.

On November 26, 2001, following completion of seismic evaluations, this condition was determined to be reportable. In accordance with Technical Specification (TS) 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," and TS 5.6.8, "PAM Report," a written report is required within the following 14 days.

The root cause of the LI-528 degraded condition has been attributed to the poor work practices when the indicator was last mounted.

The immediate corrective actions were to replace the mounting screws for LI-528 and inspect all model VX-252 meters in the control room vertical boards for missing case to frame mounting screws.

Corrective action verified that since the 1980s, when the case to frame mounting screws were presumed to have been left out, adequate procedures have been established in order to prevent such incidents.

TEXT

I. Plant Conditions

Unit 1 was in various modes and at various power levels with the conditions described below.

II. Description of Problem

A. Background

The Steam Generator (SG) Level Indicator, LI-528 [IP][LI] Westinghouse model VX-252, is a narrow range level indicator that is part of the Post Accident Monitoring (PAM) Instrumentation in service since April 1984. This level indicator is located on Vertical Board 3 in the control room and indicates the narrow range water level of Unit 1 SG 1-2.

The narrow range SG level indicator is used to detect a SG tube rupture, monitor secondary heat sink and monitor SG water level following a feedwater line break while the water level is within the narrow range span. LI-528 is qualified as a Category 1 instrument in accordance with Regulatory Guide (RG) 1.97, "Instrumentation for Light-water-cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," section 1.3.1, "Design and Qualification Criteria." Category 1 Instrumentation must comply with RG 1.100, "Seismic Qualification of Electric Equipment for Nuclear Power Plants."

As discussed in the Final Safety Analysis Report Update section 7.5, "Safety Related Display Instrumentation," three channels are available to monitor SG narrow range water level while only two channels are required. Only two of these channels are designated as PAM Instrumentation and are seismically qualified, even though all three channels have the same design qualifications. LI-528 is one of the two designated PAM indicators. In addition to narrow range indication one wide range water level channel is available.

TS 3.3.3, "Post Accident Monitoring (PAM) Instrumentation," Table 3.3.3-1, item 13.b, requires two SG water level narrow range indications. Action A states that operable status must be restored within 30 days. Action B requires that a PAM Report be submitted in accordance with TS 5.6.8.

TEXT

TS 5.6.8, "PAM Report" requires a written report to outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channel within the following 14 days.

Westinghouse model VX-252 indicators are enclosed in a plastic case with a clear window on the front face. The meter frame inserts into the plastic case and consists of a 1 mA D'Arsenval meter movement with jeweled pivot. An armature, together with its thin wire upper and lower stops, is attached by two screws to the internal meter movement mounting. In turn, two screws secure the internal meter movement assembly to the plastic frame. The frame is then slid into the plastic indicator enclosure with four small case to frame mounting screws. Electrical connections are made on the back of the plastic indicator frame. The connecting wires have little slack.

B. Event Description

On November 7, 2001, a PG&E licensed plant operator discovered that the four case to frame mounting screws were missing from LI-528. The meter was able to move in its mount but restrained by attached wiring.

On November 7, 2001, the four mounting screws were replaced.

On November 8, 2001, an evaluation was performed to determine the impact of the missing screws on the system interaction of LI-528. It was determined that LI-528 could not fall into the front or back of the vertical board due to the lack of slack in the wiring attached to the back of the plastic indicator frame. Therefore, it was determined that the indicator would not damage other equipment during a seismic event and was not a Seismically Induced System Interaction (SISI) source.

On November 15, 2001, a history search was performed regarding past maintenance on LI-528. It was determined that there had not been maintenance in recent years that could account for the mounting screws having been removed.

On November 20, 2001, another evaluation was performed to determine the impact of the missing screws on the function of LI-528. It was concluded that the meter could be unavailable after a seismic

TEXT

event. With all four case to frame mounting screws missing, LI-528 was not seismically qualified for functionality.

On November 26, 2001, PG&E determined this event was a violation of the limiting condition of operation (LCO) of TS 3.3.3, and a 14-day PAM Report was required per TS 5.6.8.

On December 11, 2001, a pull test was performed to determine the load necessary to qualify the VX-252 meters. It was determined that a single screw was adequate to ensure that operability of the meter be maintained.

On December 13, 2001, an inspection of all Westinghouse model VX-252 meters was completed. Several additional meters were identified with missing mounting screws; however all safety related meters had at least one screw installed. Therefore, all of these additional meters were determined to be operable despite their degraded condition.

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

LI-528, was determined to be inoperable based on its failure to satisfy the required functional seismic qualification.

The period of time in which LI-528 was not seismically qualified is unknown. Investigations to date have determined no maintenance involving the mounting screws of LI-528 had been performed in recent years. The conservative assumption would be that the mounting screws had been left out for greater than 30 days.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

A utility licensed plant operator discovered the condition.

F. Operator Actions

None.

G. Safety System Responses

None.

III. Cause of the Problem

A. Immediate Cause

The LCO for TS 3.3.3 was not satisfied with LI-528 inoperable for greater than 30 days, due to a lack of mounting screws.

B. Root Cause

The root cause of this event has been attributed to the poor work practices in place in the 1980's, when the VX-252 meters were removed and reinstalled to disable a "zero adjust" feature. The meters were again removed and reinstalled to be tested and calibrated to support plant start-up activities. PG&E believes that the case to frame mounting screws were left out during this period of maintenance.

C. Contributory Cause

Contributory causes include a lack of direction from written procedures and documents, little or no expectations or standards communicated by management to technicians, and replacement screws were not readily available should a technician drop or misplace one.

IV. Assessment of Safety Consequences

In the case of a seismic event, which resulted in the failure of LI-528 to perform its control room indication function, one of the redundant SG level indicators, located immediately adjacent to LI-528, could have been utilized with no effect on safety. LI-528 was evaluated and found not to be a significant SISI source that would adversely affect other control board indications or controls. Additionally, control room indicators are isolated from the remaining portion of the instrument channel; therefore, there would have been no adverse effect on the associated reactor trip or engineered safety features actuation system functions.

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

TEXT

V. Corrective Actions

A. Immediate Corrective Actions

On November 7, 2001, the four case to frame mounting screws were replaced on LI-528 returning the instrument to operable status by restoring the seismic qualification.

B. Corrective Actions to Prevent Recurrence

Since the early 1980s, when the case to frame mounting screws were presumed to have been left out, the following procedures have been established in order to prevent such incidents;

a. AD4.ID8, "Identification and Resolution of Loose, Missing, or Damaged Fasteners"

b. AD7.DC8, "Work Control"

Therefore, no additional corrective actions to prevent recurrence are required.

VI. Additional Information

A. Failed Components

None.

B. Previous Similar Events

None.