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SHIFFER,J.D. Pacific Gas & Electric Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-018-00:on 901212,Unit 1 cable spreading room ventilation sys supply fire damper VAC-1-FD-220 observed to be open after pressurization of CO-2 header due to indeterminate reason.Procedure will be revised.W/910121 ltr.

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James D. Shiffer
Senior Vice President and
General Manager
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January 21, 1991

PG&E Letter No. DCL-91-014

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Re: Docket No. 50-275, OL-DPR-80
Diablo Canyon Unit 1
Licensee Event Report 1-90-018
Fire Damper Cardox Actuation Fusible Link Assembly Incorrectly Installed For Indeterminate Reason

Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(i)(B), PG&E is submitting the enclosed Licensee Event Report (LER) concerning incorrect installation of a fire damper carbon dioxide (cardox) actuation fusible link assembly.

This event has in no way affected the health and safety of the public.

Sincerely,

J. D. Shiffer

cc: A. P. Hodgdon
J. B. Martin
P. J. Morrill
P. P. Narbut
H. Rood
CPUC
Diablo Distribution
INPO

DC1-90-SS-N085

Enclosure

5182S/0085K/ALN/2246

IE22
1/1

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 7

TITLE (4) FIRE DAMPER CARDOX ACTUATION FUSIBLE LINK ASSEMBLY INCORRECTLY INSTALLED FOR INDETERMINATE REASON

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MON	DAY	YR	YR	SEQUENTIAL NUMBER	REVISION NUMBER	MON	DAY	YR	FACILITY NAMES	DOCKET NUMBER (S)
12	21	90	90	- 0 1 8 -	0 0	01	21	91		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1
POWER LEVEL (10)	1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)

X 10 CFR 50.73(a)(2)(i)(B)

OTHER -

(Specify in Abstract below and in text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER AREA CODE	TELEPHONE NUMBER
MARTIN T. HUG, SENIOR REGULATORY COMPLIANCE ENGINEER	805	545-4005

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
| | YES (if yes, complete EXPECTED SUBMISSION DATE)	| X | NO				

ABSTRACT (16)

On December 12, 1990, during performance of Surveillance Test Procedure (STP) M-39B, "Routine Surveillance Test Of Cable Spreading Room Carbon Dioxide Fire System Operation," Unit 1 cable spreading room ventilation system supply fire damper VAC-1-FD-220 was observed to be open after pressurization of the CO_2 header, contrary to the intended closed position.

The failure of the fire damper to close was due to incorrect installation of the cardox system actuation rod and fusible link assembly following the last surveillance activity on this damper on November 29, 1989. The root cause of this event was indeterminate but was most likely due to personnel error. This condition could have resulted in dilution of the CO_2 discharged in this area in the event of a fire. The rod and link assembly was reassembled to the correct configuration and successfully tested. The similar assembly for the Unit 2 cable spreading room damper was inspected and found acceptable.

STP M-39B will be revised to include an illustration of the correct assembled configuration of the cardox actuation rod and fusible link assembly.

I. Plant Conditions

Unit 1 was in Mode 1 (Power Operation) at 100 percent power.

II. Description of Event

A. Event:

On December 12, 1990, the Unit 1 cable spreading room (CSR) ventilation system supply fire damper (VF)(DMP), VAC-1-FD-220, failed to close on CO_2 header (LW) pressurization during Surveillance Test Procedure (STP) M-39B, "Routine Surveillance Test Of Cable Spreading Room Carbon Dioxide Fire System Operation." The damper is constructed in two sections, and neither section operated correctly due to the incorrect installation of the carbon dioxide (cardox) actuation rod and fusible link assembly (see Attachment 1). The cardox actuation rod and fusible link assembly are actuated (disconnected) during the performance of STP M-39B, which was successfully performed on November 29, 1989. As part of post-test recovery, in accordance with STP M-39B, the cardox actuation rod and fusible link assembly are reattached. According to the instructions of STP M-39B, "When resetting the Class II ventilation dampers, the rings on the chain holding the damper up must be between the two retainers prior to sliding the push rod through the rings. If this is not done, the dampers may not drop on demand." According to the statement by the test director, the actuation rod and fusible link assembly configuration were verified correct during the STP on November 29, 1989. However, the as-found condition of the damper was not in accordance with STP M-39B.

On December 21, 1990, PG&E determined that the failure of VAC-1-FD-220 to close could have resulted in dilution of the CO_2 concentration below the design concentration in the event of a fire in the Unit 1 CSR.

With the CO_2 system inoperable in the CSR, Technical Specification (TS) 3.7.9.3 action statement a. requires a continuous fire watch to be established within one hour. Since there was not a continuous fire watch during the period the supply damper was inoperable following the last surveillance, compliance with the TS action statement was not met.

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

CSR room ventilation system supply damper VAC-1-FD-220.

C. Dates and Approximate Times for Major Occurrences:

1. November 29, 1989: STP M-39B successfully performed and the linkage was stated to have been correctly installed.

2. December 12, 1990: CSR ventilation system supply damper VAC-1-FD-220 failed to close on CO_2 header pressurization during STP M-39B.

3. December 21, 1990: Event/Discovery date. A Technical Review Group reviewed an engineering evaluation of the effect of the open damper on CO_2 concentration in the CSR and determined that the concentration could have been unacceptable. Thus, this event is reportable in accordance with 10CFR50.73(a)(2)(i)(B).

D. Other Systems or Secondary Functions Affected:

None.

E. Method of Discovery:

Damper VAC-1-FD-220 was observed to be open when inspected as part of STP M-39B on December 12, 1990.

F. Operators Actions:

None.

G. Safety System Responses:

None.

III. Cause of the Event

A. Immediate Cause:

The cardox actuation rod and fusible link assembly for VAC-1-FD-220 were incorrectly installed, causing VAC-1-FD-220 to fail to close on CO_2 header pressurization.

B. Root Cause:

Investigation of this event determined that the root cause was indeterminate, but the most likely cause was personnel error. Following the performance of STP M-39B on November 29, 1989, the cardox actuation rod and fusible link assembly were apparently taken apart and incorrectly reinstalled. Action requests, STPs, and work orders were reviewed and only STP M-70, "Inspection Of Fire Barrier Penetrations," had been authorized since November 1989 (in May 18, 1990). The test engineer for STP M-70 verified that the cardox actuation rod was undisturbed during the May 1990 inspection.

C. Contributory Cause:

The CSR ventilation system supply fire dampers in Unit 1 and Unit 2 are unique; no other Diablo Canyon fire dampers operate with the same cardox-actuated closure mechanism. No vendor manual or configuration drawing exists for this damper actuation mechanism.

The test director for STP M-39B was not a qualified fire protection engineer and had limited experience with fire protection systems. Also, STP M-70 does not require verification of the damper as-left condition.

IV. Analysis of the Event

A. Safety Analysis:

The CSR ventilation supply damper VAC-1-FD-220 was incorrectly installed and would not close on a cardox system actuation. In the event of a fire in the CSR, the dilution caused by the continued but reduced flow of air into the CSR could have resulted in a CO_2 concentration below the design concentration level for the area.

However, the smoke detector and annunciator in the CSR were fully operational during this time and manual fire fighting equipment was in close proximity to the CSR. The

ventilation exhaust dampers functioned as designed so that CO_2 leakage would only be through designed openings such as doors and hatches. VAC-1-FD-220 was fully functional as a fire barrier during this period since the fusible link closure mechanism was not affected by the incorrect installation. In the event of a CSR fire, an orderly and safe reactor shutdown could have been performed from the remote shutdown panel. Thus, the health and safety of the public were not adversely affected by this condition.

V. Corrective Actions

A. Immediate Corrective Actions:

Damper VAC-1-FD-220 was reassembled to the correct configuration and successfully tested by reperforming STP M-39B on December 12, 1990.

B. Investigative Actions:

1. The similar damper on Unit 2 was inspected and found to be acceptable. It was also determined that there are no other similar damper configurations in the plant.

2. An assessment of the impact of the open damper on CO_2 concentration was performed. The assessment could not assure that the 50 percent design concentration of CO_2 would be achieved.

3. Fire watch logs for the CSR were reviewed and it was determined that there have been periods greater than one hour since November 29, 1989, when a continuous fire watch had not been established.

C. Corrective Actions to Prevent Recurrence:

1. STP M-39B will be enhanced to include a drawing of the fusible link attachment between the cardox system and the ventilation dampers.

2. A qualified and experienced fire protection engineer has been hired as the test director for fire protection systems.

3. STP M-70 will be revised to include a caution statement and to provide verification of the fire damper as-left condition.

VI. Additional Information

A. Failed Components:

None.

B. Previous Similar LERs:

None.

Attachment 1