

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) DIABLO CANYON UNIT 2	DOCKET NUMBER (2) 0 5 0 0 0 3 2 3	PAGE (3) 1 OF 7
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TITLE (4) **TECHNICAL SPECIFICATION 3.9.12 NOT MET WHEN THE FUEL HANDLING BUILDING VENTILATION SYSTEM WAS INOPERABLE DURING FUEL MOVEMENT DUE TO PERSONNEL ERROR**

EVENT DATE (6)			LER NUMBER (8)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)			
MON	DAY	YR	YR	SEQUENTIAL NUMBER		REVISION NUMBER	MON	DAY	YR	FACILITY NAMES		DOCKET NUMBER (6)	
03	17	93	93	-	0 0 4	-	0 0	04	15	93			0 5 0 0 0
													0 5 0 0 0

OPERATING MODE (9) **6**

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

POWER LEVEL (10) **0 | 0 | 0**

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)

DAVID P. SISK, SENIOR REGULATORY COMPLIANCE ENGINEER	TELEPHONE NUMBER AREA CODE 805	TELEPHONE NUMBER 545-4420
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input checked="" type="checkbox"/> YES (if yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO		06	15	93

ABSTRACT (16)

On March 17, 1993, at 1008 PST, with Unit 2 in Mode 6 (Refueling), Technical Specification (TS) 3.9.12 was not met when a fuel handling building (FHB) door was opened to mitigate an ammonia/hydrazine leak in the FHB during fuel assembly insert shuffle.

Opening the FHB door caused the TS 3.9.12 requirements for FHB ventilation system (FHBVS) operability to be exceeded. TS 3.9.12 requires that, with no FHBVS operable, fuel movement activities must be suspended.

On March 17, 1993, at 1015 PST the Unit 2 shift foreman (SFM) was notified that the FHB door had been opened. The SFM immediately directed an assessment of the FHB pressure. The assessment determined that TS 3.9.12 FHB negative pressure requirements had been exceeded; all fuel handling activity was immediately suspended.

PG&E has determined that the preliminary root cause of this event is personnel error. A supplemental report will be submitted when the final root cause has been determined and corrective actions are identified.

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I. Plant Conditions

Unit 2 was in Mode 6 (Refueling) at 0 percent power during this event.

II. Description of Event

A. Summary:

On March 17, 1992, during the Unit 2 fifth refueling outage (2R5), at approximately 0800 PST, an ammonia/hydrazine leak occurred on the 100 foot elevation of the fuel handling building (FHB)(ND). During this time, insert (DB) shuffle was in progress in the Unit 2 spent fuel pool (SFP)(DB) and the FHB ventilation system (FHBVS)(VG) was in the iodine removal mode. At 1008 PST, Technical Specification (TS) 3.9.12 was not met when a FHB door was propped open to dissipate fumes.

B. Background:

Final Safety Analysis Report (FSAR) Update Section 9.4.4.1 indicates that the requirement for the design of the FHBVS system is to remove more air than is supplied so that all potential air leakages will be into and not out of the FHB. The FSAR Update assumes that the spent fuel pool area is supplied with less air than is exhausted, thus creating a negative pressure with respect to ambient. A negative pressure assures that exfiltration from the area of a spent fuel handling accident would be through the FHB exhaust.

FSAR Update Section 9.4.4.2 indicates that the iodine removal mode of FHBVS operation is required when there is a potential for radioactive particulates and/or radioactive gases in the exhaust air of the FHB and routes all exhaust air through roughing filters (VG)(FLT), high efficiency particulate air filters (HEPA)(VG)(FLT), and activated charcoal filters (VG)(ADS). When not manually selected, the iodine removal mode of ventilation is automatically initiated by a radiation detector (VG)(DET).

Administrative Procedure (AP) C-66, "Control of Doors Important to Safety," requires that an individual put into effect all compensatory actions prior to impairing the function of any identified ventilation boundary door. In any situation where requirements are unclear, AP C-66 requires notification of the shift foreman (SFM) prior to impairing the function of a door. This procedure specifically addresses the loss of differential pressure maintenance function of FHB doors and suspension of concurrent fuel handling activities in the FHB.



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C. Event Description:

On March 17, 1993, at approximately 0800 PST, an ammonia/hydrazine leak from a valve (KD)(V) used in feedwater (SJ) chemistry control occurred on the 100 foot elevation of the FHB. During this time insert shuffle was in progress in the Unit 2 SFP and the FHBVS was in the iodine removal mode.

To permit air sampling and to assist in the dissipation of ammonia/hydrazine fumes, personnel door 258-2 (ND)(DR) was propped open at approximately 1008 PST. The SFM was informed of the open FHB door at 1015 PST. During the time the FHB door was open it was attended by Operations personnel.

On March 17, 1993, at 1018 PST, the fuel handling senior reactor operator (SRO) checked the FHB pressure and determined it to be approximately negative 0.10-inch H₂O (TS 3.9.12 requires a pressure not less than negative 1/8-inch H₂O). Thus, Operations determined that the FHBVS was not in compliance with TS 3.9.12 and was inoperable. The fuel handling SRO immediately directed fuel handling equipment be placed in a safe configuration and informed the SFM. The insert shuffle was halted. The SFM recognized that the out-of-specification FHB pressure was a result of the FHB door being propped open.

The FHB door was permitted to remain open until 1035 PST to decrease the concentration of the ammonia/hydrazine fumes in the FHB to an acceptable amount, at which time the door was closed.

On March 17, 1993, at 1040 PST, FHB pressure was determined to be negative 0.22-inch H₂O and the insert shuffle was resumed.

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

None.

E. Dates and Approximate Times for Major Occurrences:

1. March 17, 1993, at 0730 PST: Insert shuffle commenced in the Unit 2 SFP pool with the ventilation system in iodine removal mode (only one operable train of ventilation).
2. March 17, 1993, at 0800 PST: Ammonia/hydrazine leak occurred on the 100 foot elevation of the FHB.



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3. March 17, 1993, at 1008 PST: Event date. Door 258-2 was opened and attended, to assist in fume dissipation while insert shuffle was in progress.
4. March 17, 1993, at 1015 PST: SFM was notified that the FHB door had been opened.
5. March 17, 1993, at 1018 PST: Discovery date. Fuel handling SRO checked the negative pressure in the FHB and found it to be approximately negative 0.10-inch H₂O (TS 3.9.12 limit is negative 1/8-inch H₂O).
6. March 17, 1993, at 1021 PST: Fuel handling SRO placed fuel handling equipment in a safe configuration.
7. March 17, 1993, at 1035 PST: Ammonia/hydrazine fume limits dropped to acceptable levels and door 258-2 was closed.
8. March 17, 1993, at 1037 PST: FHB negative pressure was verified to be negative 0.22-inch H₂O.
9. March 17, 1993, at 1040 PST: Unit 2 insert shuffle in the SFP was resumed.

F. Other Systems or Secondary Functions Affected:

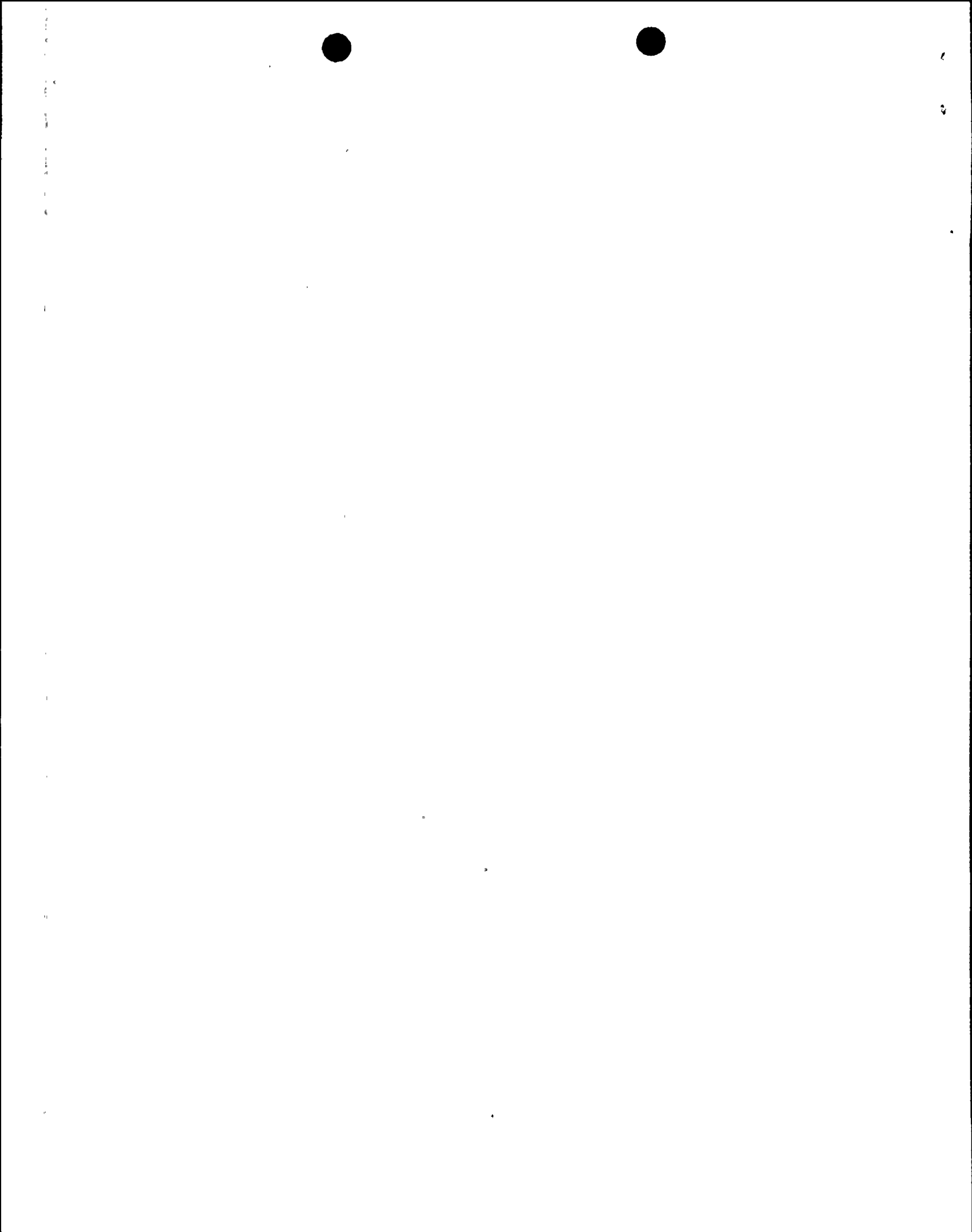
None.

G. Method of Discovery:

The SFM, when informed that the FHB personnel door was open to mitigate the ammonia/hydrazine fume concentration in the FHB, directed the refueling SRO to determine the FHB pressure. The refueling SRO confirmed that TS 3.9.12 limits had been exceeded.

H. Operator Actions:

The SFM was informed that the FHB door was opened while insert shuffling was taking place. The refueling SRO observed FHB pressure to be less negative than required by TS 3.9.12 and halted SFP activities. Insert shuffle was resumed with the concurrence of the SFM when FHB pressure returned to an acceptable value.



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I. Safety System Responses:

None required.

III. Cause of the Event

A. Immediate Cause:

The immediate cause of this event was maintaining FHB personnel door 258-2 open until TS 3:9.12 negative pressure requirements were exceeded.

B. Root Cause:

PG&E has determined that the preliminary root cause of this event is personnel error. A supplemental report will be submitted when the final root cause has been determined.

IV. Analysis of the Event

The fuel inserts were moved over spent fuel, so the potential for an accident during this event did exist. In analyzing the potential for fuel handling accidents for FSAR Update cases, it is considered far more credible that a fuel assembly could be damaged by being dropped against a sharp edge rather than sustaining damage due to a dropped load while in the storage rack. Therefore, the "expected case" assumption of 17 damaged rods would conservatively bound the potential source term from a dropped insert handling tool (1200 pounds versus 1500 pounds for a fuel assembly). The FSAR Update expected case also assumes decay of 100 hours; the decay time during this event was in excess of 280 hours. Thus, the possible source term was bounded by the existing FSAR Update assumptions.

The FHBVS has two modes of operation. The normal mode exhausts air through roughing and HEPA filters and Fan E-4 (VG)(FAN) without flowing through a charcoal filter. The iodine removal mode exhausts air through roughing and HEPA filters and either Fan E-5 or E-6 with air flow also through charcoal filters. When not manually selected, the iodine removal mode of ventilation is automatically initiated by a radiation detector.

Since negative building pressure was maintained throughout the event, unfiltered leakage from the FHB would not have occurred. The results of charcoal absorbers testing indicated adsorber efficiency was in excess of the assumptions used for FSAR Update determination of site boundary dose. It may therefore be stated that the radiological consequences of a load drop accident during this event would have been conservatively bounded by the FSAR expected case fuel handling accident.

During this event, each time a door was opened an operator was present while the door was open. Operators recognize that FHB doors must be maintained



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closed if a radiation alarm occurs for the FHBVS. If an accident had occurred, the FHB radiation detector would have detected any significant iodine activity and alarmed, alerting operators to close any open FHB doors. The FHB exhaust air flow would have automatically shifted to the iodine removal mode (although during this event the FHB ventilation system was already in the iodine removal mode), and any iodine activity would have exhausted through the charcoal filters.

Therefore, the health and safety of the public were not adversely affected by this event.

V. Corrective Actions

A. Immediate Corrective Actions:

1. The leaking ammonia/hydrazine valve was isolated.
2. All fuel handling activities were suspended and the fuel handling equipment was placed in a safe configuration when FHB pressure was identified as out-of-specification.
3. FHB pressure was verified to be more negative than negative 1/8-inch H₂O prior to the resumption of the insert shuffle.
4. An event summary was prepared and personnel were briefed on this event and the necessity for awareness of TS requirements during response to an incident.

B. Corrective Actions to Prevent Recurrence:

1. PG&E will review administrative procedures and emergency response procedures to determine if revisions are required to ensure plant personnel comply with design safety requirements.
2. Any additional corrective actions will be determined and reported in a supplement to this LER.

VI. Additional Information

A. Failed Components:

None.

B. Previous Similar Events:

LER 2-90-002, "Fuel Handling Building Ventilation System Inoperable During Fuel Movement Due to Programmatic Error"

The corrective actions to prevent recurrence from this 1990 event



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included the installation of signs at FHB doors to remind personnel that the doors were pressure boundaries for the FHB ventilation system. Investigation is proceeding to determine why this corrective action was not effective.



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