Pacific Gas and Electric Company

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November 13, 2001

PG&E Letter DCL-01-112

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

Docket No. 50-275-DPR-80
Diablo Canyon Unit 1
Licensee Event Report 1-2001-003-00
Technical Specification 3.7.6 Not Met When The Fire Water Storage Tank Was Isolated from the Auxiliary Feed Water Pumps Suction Due to Personnel Error

Dear Commissioners and Staff:

PG&E is submitting the enclosed licensee event report regarding Technical Specification 3.7.6 not being met due to personnel error when the Fire Water Storage Tank was isolated from the Auxiliary Feed Water Pumps Suction.

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

RLR/2246/A0540528E05

IE22

Rec'd 01/23/02

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)

Technical Specification 3.7.6 Not Met When the Fire Water Storage Tank Was Isolated from the Auxiliary Feed Water Pumps Suction Due To Personnel Error

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
09	13	2001	2001	- 0 0 3 -	0 0	11	13	2001		

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)		OTHER
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
X	B A	V	F 1 3 0	Yes					

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 June 29, 2001, with Unit 1 in Mode 1 (power operation) at 100 percent power Technical Specification (TS) 3.7.6, "Condensate Storage Tank (CST) and Fire Water Storage Tank (FWST)," was not met when the allowed outage time was exceeded due to a manual valve isolation between the FWST and the CST. On September 13, 2001, PG&E identified that closure of manual valve MU-1-297 on June 22, 2001, to isolate a raw water leak through valve 1-FCV-437 was a violation of the TS 3.7.6 licensing basis. Supplemental Safety Evaluation Report (SSER) 8, dated November 15, 1978, "... require(s) that redundant flow paths be provided to bypass any assumed single valve failure (valve jammed shut)," between the FWST and the auxiliary feedwater (AFW) Pumps suction as a result of a seismic event.

On September 12, 2001, valve 1-FCV-297 was opened, restoring the flow path between the FWST and CST. Valve MU-0-1557 was closed to isolate the raw water leak through 1-FCV-437.

Plant personnel have been trained to include a comprehensive review of licensing basis documents when evaluating changes in plant configuration and procedures. The Bases for TS 3.7.6 will be revised to include the critical valve line-up between the FWST and the AFW Pumps suction.

TEXT

I. Plant Conditions

Unit 1 has operated at 100 percent reactor thermal power (RTP) with the described condition.

II. Description of Problem

A. Background

Technical Specification (TS) 3.7.6, "Condensate Storage Tank (CST) and Fire Water Storage Tank (FWST)," requires that "the FWST level shall be ≥ 22.2% for one unit operation and ≥ 41.7 % for two unit operation."

TS 3.7.6, Bases, Limiting Condition for Operation (LCO) requires that "To satisfy the Hosgri analysis assumptions, the CST and FWST must contain sufficient cooling water to remove decay heat following a reactor trip from 102% RTP, and then to cool down the (*reactor coolant system*) RCS to (*residual heat removal*) RHR entry conditions, assuming a coincident loss of offsite power and the most adverse single failure."

Supplemental Safety Evaluation Report (SSER) 6, dated November 15, 1978, "... require(s) that redundant flow paths be provided to bypass any assumed single valve failure (valve jammed shut)," between the FWST and auxiliary feedwater (AFW) Pumps suction as a result of a seismic event.

On June 20, 2001, indication of contamination of the condensate system (SD) was identified in Unit 1 due to increased sodium levels. During the investigation, PG&E determined that in-leakage from an undefined water source had increased the sodium level in the CST (BA). Valve 1-FCV-437 between the Unit 1 AFW Pumps suction and the alternate long term cooling water sources was determined to be leaking-by, allowing high sodium content water to contaminate the CST.

Valve 1-FCV-437 is a normally sealed-shut valve and valve MU-1-297 is a normally sealed-open valve. Valve MU-0-1557 is a normally sealed-open valve. Refer to the diagram on page 6.

B. Event Description

On June 22, 2001, during trouble-shooting of sodium contamination of the Unit 1 CST, valve MU-1-297 was closed to stop water from the raw water reservoir (RWR) leaking-by valve 1-FCV-437 and into the CST.

TEXT

During preparation of a 10 CFR 50.59 evaluation for permanent closure of valve MU-1-297, PG&E Engineering personnel identified that SSER 8 specifically evaluated the flow path from the FWST to the AFW Pumps suction. Closure of MU-1-297 isolated the AFW Pumps with a single valve, which must be assumed to fail jammed shut following a seismic event, making the FWST inventory unavailable to the AFW Pumps for alternate decay heat removal. This is similar to the TS 3.7.6 prohibited condition A, "CST or FWST level not within limit" for which the required Action A.2 is to "Restore the CST or FWST level to within limit" within 7 days. The flow path was isolated for approximately 80 days.

On September 12, 2001, Valve MU-1-297 was reopened restoring the flow path between the FWST and the AFW Pumps suction. Valve MU-0-1557 was closed isolating the raw water contamination through 1-FCV-437.

On September 13, 2001, PG&E determined that the alternate cooling water flow path isolation constituted a violation of TS 3.7.6 on June 29, 2001, following the first 7 days of isolation.

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

FCV-437 was operable but degraded due to seating leakage.

D. Other Systems or Secondary Functions Affected

None.

E. Method of Discovery

PG&E Engineering personnel discovered the condition while performing a 10 CFR 50.59 evaluation for permanent closure of valve MU-1-297.

F. Operator Actions

None.

G. Safety System Responses

None.

III. Cause of the Problem

A. Immediate Cause

Valve MU-1-297 was closed; thereby, isolating the non-redundant flow path from the FWST to the AFW Pumps suction.

B. Root Cause

PG&E believes the cause of the flow path being isolated in violation of TS 3.7.6 is personnel error, "knowledge exceeded," due to licensing-basis documentation not readily available to the plant staff.

C. Contributory Cause

PG&E's licensing history spanned many years resulting in 34 separate SSERs. As a result the SSER 8 requirement to maintain redundant flow paths between the FWST and the AFW Pumps suction had not been clearly identified as a licensing requirement.

IV. Analysis of the Event

The CST supplemented by the FWST provides a safety grade source of water to the steam generators (SG) for removing decay and sensible heat from the RCS. The CST and FWST provide a passive flow of water, by gravity, to the AFW System. The AFW System provides water to the SGs to accomplish the heat removal function. The steam produced is released to the atmosphere by the main steam safety valves or atmospheric dump valves if the main steam isolation valves are closed.

The CST and FWST provide cooling water to remove decay heat and to cool down the unit following all events in the accident analyses as discussed in the FSAR Update, Chapters 6 and 15. The limiting event for AFW inventory, i.e., CST and FWST minimum volumes, is based on a loss of offsite power, which assumes a reduced RCS cooldown rate on natural circulation and requires seismically qualified water sources. The lower RCS cooldown rate increases the cooldown period until the RHR system can be used to remove further decay heat. The extended cooldown time thus requires more AFW supply than can be provided by the seismically qualified portion of the CST.

Because the CST and FWST are the principal components for removing residual heat from the RCS, they are designed to withstand earthquakes and other natural phenomena, including missiles that might be generated by natural

phenomena. The CST and FWST are designed Seismic Category I to ensure availability of the AFW inventory. The operability of the AFW cooling water supply is assured by verifying the CST is properly aligned and by verifying the FWST is capable of being aligned to the AFW Pumps suction.

Since there was insufficient volume in the CST alone for long-term cooling needs, the NRC required in SSER 8 that the FWST have a seismically-qualified flowpath to the AFW Pumps suction capable of withstanding an assumed seismic failure of any single valve (including a valve jammed shut).

Should valve MU-1-297 have failed in the closed position, water from additional sources could have been transferred to the CST to supply the AFW Pumps suction, as described in the FSAR Update, Chapter 6, "Auxiliary Feedwater System," subsection 6.5.2.1.1, "Water Sources."

Therefore, the event:

- Is of very low risk significance;
- 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

Valve MU-1-297 was opened and sealed in the open position. Valve MU-0-1557 was closed to prevent leak-by of raw water into the CST or loss of FWST inventory through this valve due to a stuck-open valve.

B. Corrective Actions to Prevent Recurrence

TS 3.7.6 Bases will be revised to include the critical valve line-up between the FWST and the AFW Pumps suction.

VI. Additional Information

A. Failed Components

None.

B. Previous Similar Events

None.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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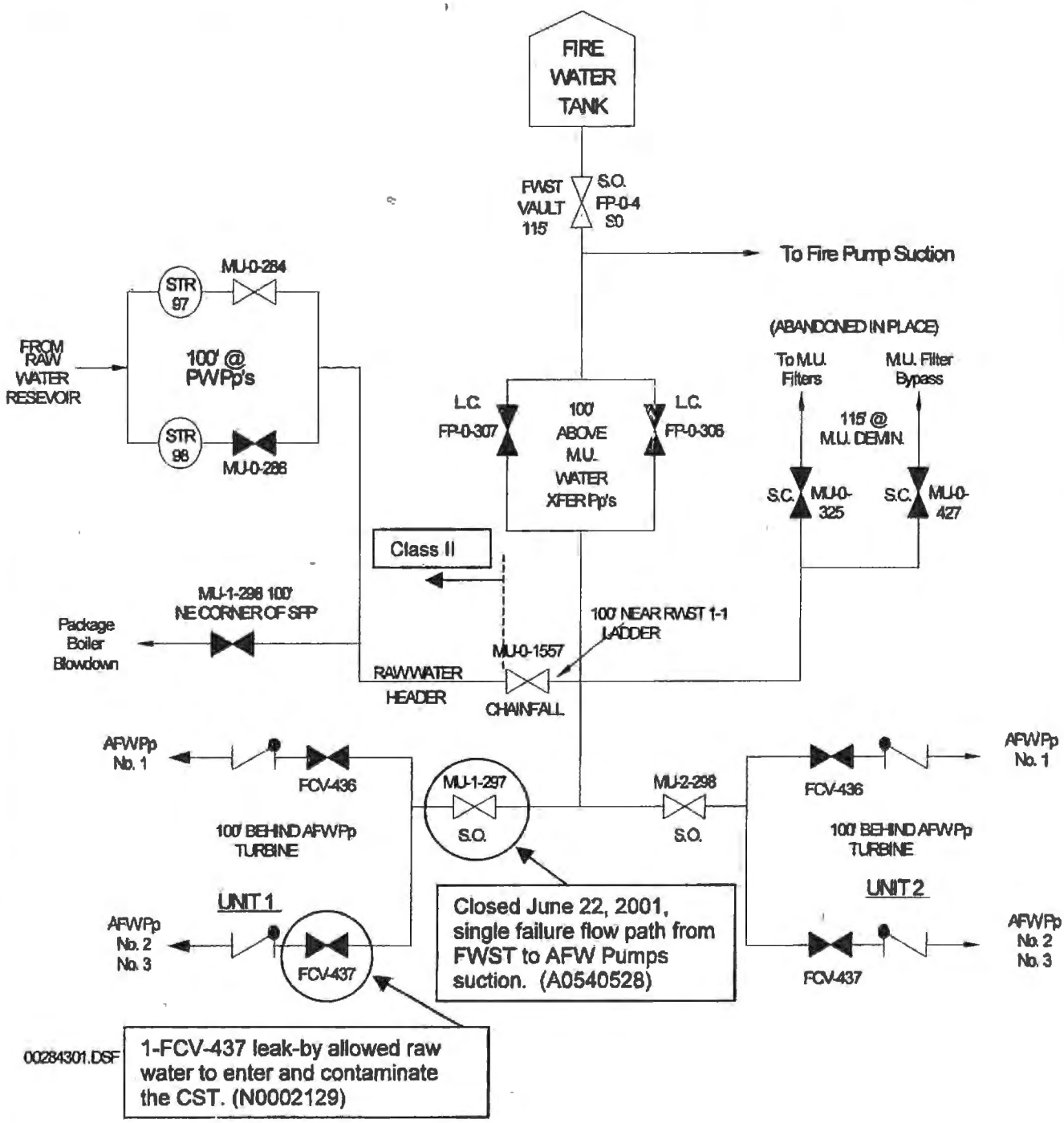
TEXT



Auxiliary Feed Water Pumps Suction from Alternate Water Sources