

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

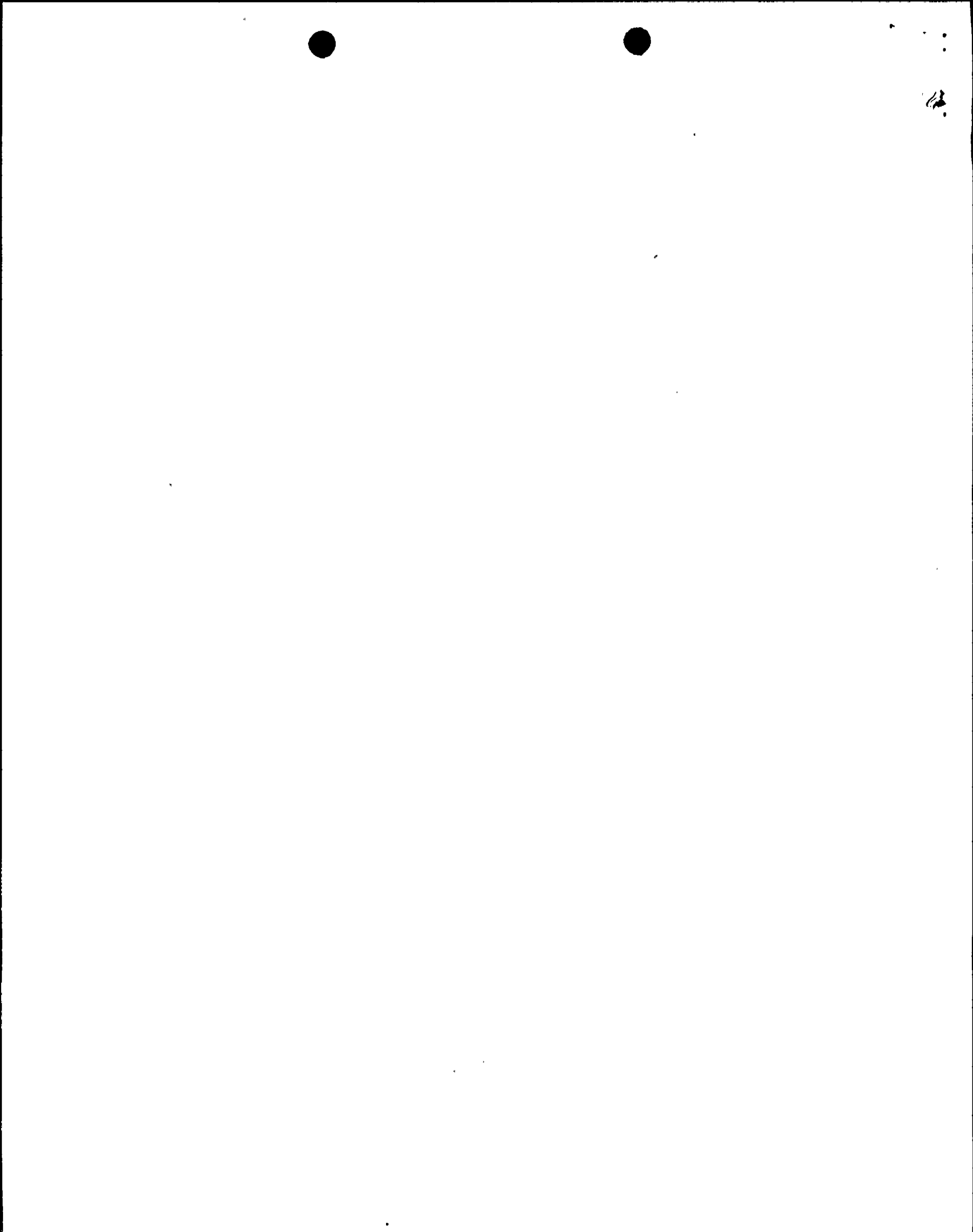
ACCESSION NBR: 8711020438 DOC. DATE: 87/10/27 NOTARIZED: NO DOCKET #  
 FACIL: 50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323  
 AUTH. NAME AUTHOR AFFILIATION  
 HUG, M. T. Pacific Gas & Electric Co.  
 SHIFFER, J. D. Pacific Gas & Electric Co.  
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-015-01: on 870714, main turbine trip, main feedwater pump trip & feedwater isolation valve closure occurred. Caused by operator inability to control steam generator level. Condenser steam dump sys repaired & tested. W/871027 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD5 LA	1 1	PD5 PD	1 1
	TRAMMELL, C	1 1		
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DOA	1 1	AEOD/DSP/NAS	1 1
	AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
	ARM/DCTS/DAB	1 1	DEDRO	1 1
	NRR/DEST/ADS	1 0	NRR/DEST/CEB	1 1
	NRR/DEST/ELB	1 1	NRR/DEST/ICSB	1 1
	NRR/DEST/MEB	1 1	NRR/DEST/MTB	1 1
	NRR/DEST/PSB	1 1	NRR/DEST/RSB	1 1
	NRR/DEST/SGB	1 1	NRR/DLPQ/HFB	1 1
	NRR/DLPQ/QAB	1 1	NRR/DOEA/EAB	1 1
	NRR/DREP/RAB	1 1	NRR/DREP/RPB	2 2
	NRR/DRIS/SIB	1 1	NRR/PMAS/ILRB	1 1
	REG FILE 02	1 1	RES DEPY GI	1 1
	RES TELFORD, J	1 1	RES/DE/EIB	1 1
	RGNS FILE 01	1 1		
EXTERNAL:	EG&G GROH, M	5 5	H ST LOBBY WARD	1 1
	LPDR	2 2	NRC PDR	1 1
	NSIC HARRIS, J	1 1	NSIC MAYS, G.	1 1



# LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)						DOCKET NUMBER (2)				PAGE (3)	
DIABLO CANYON UNIT 2						05000323				1 OF 04	

TITLE (4) **ESF ACTUATION CONSISTING OF A MAIN TURBINE TRIP AND FEEDWATER ISOLATION DUE TO INABILITY TO CONTROL STEAM GENERATOR LEVEL DURING STARTUP**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	MONTH	DAY	YEAR	MONTH	DAY	YEAR	FACILITY NAMES		
07	14	87	07	15	87	07	10	87			
									DOCKET NUMBER(S)		
									05000323		

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (11)									
1											
POWER LEVEL (10)		<input checked="" type="checkbox"/> 10 CFR 50.73(a)(2)(iv) <input type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 306A)									
0.018											

LICENSEE CONTACT FOR THIS LER (12)								TELEPHONE NUMBER			
MARTIN T. HUG, REGULATORY COMPLIANCE ENGINEER								AREA CODE			
								805 595-7351			

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)						EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete expected submission date)						<input checked="" type="checkbox"/> NO				

**ABSTRACT (16)**

At 0441 PDT, July 14, 1987, with the unit in Mode 1 during startup, a main turbine trip, main feedwater pump trip, and feedwater isolation valve closure occurred due to steam generator 2-2 reaching its high level setpoint (P-14). The high steam generator level was caused by feedwater control difficulties during startup resulting from mechanical problems with 2 steam dump valves and operating with a positive moderator temperature coefficient (MTC).

Operators promptly reduced reactor power and stabilized the plant in Mode 2.

A 4-hour nonemergency report was made at 0531 PDT, July 14, 1987, since a main turbine trip and feedwater isolation is considered an ESF.

The immediate corrective actions were to repair and test the condenser steam dump system and to contact other facilities with positive MTC experience for information on operating strategies. These strategies were reviewed with all operators.

The long-term corrective actions will be to revise startup procedures to: provide more detail for feedwater control on startup, identify systems required to be fully operable and provide methods for starting up with a positive MTC. PG&E will revise the simulator program to model the characteristics of the core after a reload if there is a significant difference between the reactor core and the simulator core model.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8   7	- 0   1   5	- 0   1	0   2	OF	0   4

TEXT (if more space is required, use additional NRC Form 368A's) (17)

I. Initial Conditions

Unit 1 was in Mode 1 (Power Operation) at 8 percent power.

II. Description of Event

A. Event:

At 0441 PDT, July 14, 1987, with the Unit in Mode 1 (Power Operation) during startup, a main turbine trip (TA)(TRB), main feedwater pump trip (SJ)(P), and feedwater isolation (SJ) valve closure occurred due to steam generator (AB)(BLR) 2-2 reaching its high-high steam generator level setpoint (P-14).

The high steam generator level was caused by feedwater control difficulties during startup resulting from mechanical problems with two steam dump valves (SB)(PCV). The feedwater control difficulties were further aggravated by a positive moderator temperature coefficient (MTC).

Operators promptly reduced reactor power and stabilized the plant in Mode 2 (Startup).

As required by 10 CFR 50.72(b)(2)(ii), a 4-hour nonemergency report was made at 0531 PDT, July 14, 1987.

B. Inoperable structures, components or systems that contributed to the event:

Steam dump system

C. Dates and approximate times for major occurrences:

1. July 14, 1987, 0441 PDT: Event date
2. July 14, 1987, 0448 PDT: Unit stabilized in Mode 2.
3. July 14, 1987, 0531 PDT: 4-hour report pursuant to 10 CFR 50.72(b)(2)(ii) was made.

D. Other systems or secondary functions affected:

None

E. Method of discovery:

The event was immediately apparent due to the annunciator alarms in the control room.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  DIABLO CANYON UNIT 2	DOCKET NUMBER (2)  0   5   0   0   0   3   2   3   8   7   -   0   1   5   -   0   1	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
					0   3	OF	0   4

TEXT (If more space is required, use additional NRC Form 366A's) (17)

F. Operator actions:

Reactor power was promptly reduced, and the unit was stabilized in Mode 2.

G. Safety system responses:

1. The turbine tripped.
2. The main feedwater pumps tripped.
3. The main feedwater control valves, main feedwater control bypass valves, and main feedwater isolation valves shut.

III. Cause of Event

A. Immediate cause:

High steam generator level (P-14) caused a main turbine trip, feedwater pump trip, and feedwater isolation.

B. Root cause:

Operator's inability to control steam generator level due to feedwater control difficulties during startup resulting from mechanical problems with two steam dump valves and from operating with a positive MTC.

IV. Analysis of Event

Loss of a turbine generator is a previously analyzed event (FSAR Update 15.2.7). All safety feature equipment responded normally during the turbine trip. Thus, there were no unanalyzed safety consequences or implications resulting from this event.

V. Corrective Actions

The immediate corrective actions to prevent recurrence were to repair, adjust, and test the steam dump system and to contact other facilities with positive MTC experience for information on operating strategies. These strategies were reviewed with all operators.

The long-term corrective actions will be to revise startup procedures to: provide more detail for feedwater control on startup, identify systems required to be fully operable and provide methods for starting up with a positive MTC. Additionally, PG&E will revise the simulator program to adequately model the characteristics of the core after a core reload if there is a significant difference between the reactor core and the simulator core model.

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# LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

TEXT (If more space is required, use additional NRC Form 366A's) (17)

## VI. Additional Information

### A. Failed components:

None

### B. Previous LERs on similar events:

None

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PACIFIC GAS AND ELECTRIC COMPANY

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JAMES D. SHIFFER  
VICE PRESIDENT  
NUCLEAR POWER GENERATION

October 27, 1987

PG&E Letter No.: DCL-87-255

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

Re: Docket No. 50-323, OL-DPR-82  
Diablo Canyon Unit 2  
Licensee Event Report 2-87-015-01  
ESF Actuation Consisting of a Main Turbine Trip and  
Feedwater Isolation Due to Inability to Control Steam  
Generator Level During Startup

Gentlemen:

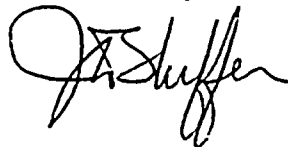
Pursuant to 10 CFR 50.73(a)(2)(iv), PG&E is submitting the enclosed Licensee Event Report concerning an engineered safety feature (ESF) actuation consisting of a main turbine trip and feedwater isolation due to the inability to control steam generator level during startup.

This is a revision to LER 2-87-015-00. This LER revision contains long-term corrective actions not addressed in the last submittal.

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

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely,



Enclosure

cc: J. B. Martin  
M. M. Mendonca  
P. P. Narbut  
B. Norton  
V. H. Vogler  
CPUC  
Diablo Distribution  
INPO

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