

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) DIABLO CANYON, UNIT 1										DOCKET NUMBER (2) 0 5 0 0 0 2 7 5										PAGE (3) 1 OF 0 4																																																														
TITLE (4) FAILED COMPARATOR MODULE RESULTS IN REACTOR COOLANT PUMP BREAKER OPEN REACTOR TRIP																																																																																		
EVENT DATE (5)									LER NUMBER (6)									REPORT DATE (7)									OTHER FACILITIES INVOLVED (8)																																																							
MONTH			DAY			YEAR			YEAR			SEQUENTIAL NUMBER			REVISION NUMBER			MONTH			DAY			YEAR			FACILITY NAMES													DOCKET NUMBER(S)																																										
1			0			2			5			8			5			8			5			0			3			3			0			0			1			1			2			5			8			5			0 5 0 0 0													0 5 0 0 0												
OPERATING MODE (9) 1									THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																																																																									
POWER LEVEL (10) 1 0 0									20.402(b)									20.405(c)									<input checked="" type="checkbox"/> 50.73(a)(2)(iv)									73.71(b)																																														
									20.405(a)(1)(i)									50.36(e)(1)									50.73(a)(2)(v)									73.71(e)																																														
									20.405(a)(1)(ii)									50.53(e)(2)									50.73(a)(2)(vii)									OTHER (Specify in Abstract below and in Text, NRC Form 365A)																																														
									20.405(a)(1)(iii)									50.73(a)(2)(ii)									50.73(a)(2)(viii)(A)																																																							
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LICENSEE CONTACT FOR THIS LER (12)																																																																																		
NAME JACQUELINE HINDS, REGULATORY COMPLIANCE ENGINEER																				TELEPHONE NUMBER AREA CODE 8 0 5 5 9 5 1 - 7 3 5 1																																																														
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																																																		
CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPDOS				CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPDOS																																																														
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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 (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 1321 PDT, October 25, 1985, while in Mode 1 (Power Operation) at 100 percent power, automatic reactor and turbine trips occurred. Two plant technicians were restoring the boric acid storage tank level indicating/alarm circuit. When a fuse was being installed while returning the circuit to operation, a shorted capacitor in a comparator module created a momentary short in a 120 volt power supply bus circuit. The resultant reduction in inverter voltage output caused a relay in the solid state protection racks, which monitors reactor coolant pump (RCP) breaker position, to momentarily drop out. Since the unit was above P-8 (Loss of Flow Permissive), only one RCP breaker open signal was required to initiate a reactor trip.

The comparator module was replaced and the unit was returned to power in accordance with procedures.

To prevent recurrence, PGandE is seeking expeditious NRC approval of a license amendment request to change the RCP breaker position trip logic. This will prevent a single failure, such as the failed comparator in this case, from putting the plant through an unnecessary transient.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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

TEXT (If more space is required, use additional NRC Form 388A's) (17)

I. Initial Conditions

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

II. Description of Event

A. Event:

At 1321 PDT, October 25, 1985, automatic reactor and turbine trips occurred while two plant technicians were restoring the boric acid storage tank level indicating/alarm circuit (CA)(LA). When a fuse (CA)(FU) was installed while returning the circuit to operation, a shorted capacitor (CA)(CAP) in a comparator module created a momentary short in a 120 volt power supply bus circuit. The resultant reduction in inverter voltage output caused a relay (JC)(RLY) in the solid state protection racks, which monitors reactor coolant pump (RCP) breaker (AB)(BKR) position, to momentarily drop out. Since the unit was above P-8 (Loss of Flow Permissive), only one RCP breaker open signal was required to initiate a reactor trip.

The appropriate emergency procedures were followed and the unit was stabilized in Mode 3 (Hot Standby) at 1600 PDT.

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

None

C. Dates and approximate times for major occurrences:

Event date: 1321 PDT, October 25, 1985

Stable conditions achieved: 1600 PDT, October 25, 1985

Comparator module replaced: 1000 PDT, October 26, 1985

D. Other systems or secondary functions affected:

None

E. Method of discovery:

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

F. Operator actions:

The operators followed the appropriate emergency procedures and placed the unit in a stable condition.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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

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

G. Safety system responses:

1. The reactor trip breakers (AA) (BKR) opened.
2. The control rod drive mechanism (AA)(DRIV) allowed the control rods (AA)(ROD) to drop into the reactor.
3. The turbine (TA)(TRB) tripped.

III. Cause of Event

A. Immediate cause:

The reactor coolant pump breaker position relay opened momentarily causing a reactor trip.

B. Root cause:

A boric acid storage tank level comparator module failed. A capacitor on one of the printed circuit cards (CA)(BD) in the comparator module developed a short. When a fuse was being installed while returning the level indicating/alarm circuit to operation, the short caused a momentary decrease in inverter output voltage which resulted in the relay that monitors reactor coolant pump breaker position to momentarily drop out. The design of the Reactor Protection System (RPS) is such that this single failure resulted in a reactor trip.

IV. Analysis of Event

The failure of the comparator module resulted in the automatic actuation of the RPS. Since the RPS responded as designed, there were no adverse safety implications to the public.

V. Corrective Actions

- A. The comparator module was replaced.
- B. PGandE is seeking expeditious NRC approval of a license amendment request to change the RCP breaker position trip logic. Approval of this request will permit the design modification to be installed, thus preventing a single failure, such as the failed comparator in this case, from putting the plant through an unnecessary transient.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/85

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

VI. Additional Information

A. The capacitor was manufactured by Sprague and installed in a Westinghouse supplied Hagan Alarm and Signal Comparator (style 4111082-001).

B. Previous LERs on similar events:

LER 1-85-12

April 19, 1985

LER 1-85-15

June 18, 1985

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

77 BEALE STREET • SAN FRANCISCO, CALIFORNIA 94106 • (415) 781-4211 • TWX 910-372-6587

JAMES D. SHIFFER
VICE PRESIDENT
NUCLEAR POWER GENERATION

November 25, 1985

PGandE Letter No.: DCL-85-353

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

Re: Docket No. 50-275, OL-DPR-80
Diablo Canyon Unit 1
Licensee Event Report 85-033-00
Failed Comparator Module Results in Reactor Coolant Pump
Breaker Open Reactor Trip

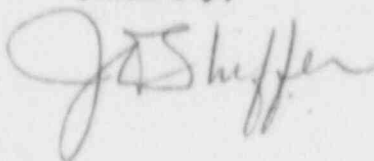
Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(iv), PGandE is submitting the enclosed Licensee Event Report concerning a failed comparator module resulting in a reactor coolant pump breaker open reactor trip.

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: L. J. Chandler
J. B. Martin
B. Norton
CPUC
Diablo Distribution

0609S/0038K/JHA/2135
DCL-85-TI-N124

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