

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) DIABLO CANYON, UNIT 2										DOCKET NUMBER (2) 0 5 0 0 0 3 1 2 1 3										PAGE (3) 1 OF 014	
TITLE (4) PROCEDURAL INADEQUACY AND INATTENTION CAUSED A HIGH STEAM GENERATOR LEVEL TURBINE TRIP AND SUBSEQUENT REACTOR TRIP												OTHER FACILITIES INVOLVED (5)									
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			FACILITY NAMES			DOCKET NUMBER(S)									
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR													
10	24	85	85	0110	00	11	12	85				0 5 0 0 0									
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)										73.71(b)									
1												73.71(c)									
POWER LEVEL (10)												OTHER (Specify in Abstract below and in Text, NRC Form 366A)									
030																					
LICENSEE CONTACT FOR THIS LER (12)												TELEPHONE NUMBER									
NAME DAVID P. SISK, REGULATORY COMPLIANCE ENGINEER												AREA CODE 805 595-1735									
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																					
CAUSE	SYSTEM	COMPONENT	MANUF- TURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUF- TURER	REPORTABLE TO NPDs											
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR					
YES (If yes, complete EXPECTED SUBMISSION DATE)												X NO									

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On October 24, 1985 at 1128 PDT with Unit 2 at 30 percent power and startup tests being conducted on Main Feed Pump 2-2, high water level in a steam generator resulted in a turbine trip and subsequent reactor trip. With the feedwater control system in automatic and one condensate booster pump supplying one feed pump and another idle feed pump in full recirculation, the starting and stopping of additional condensate booster pumps resulted in the feedwater control system failing to maintain steam generator water level within normal operating limits. Plant operators took manual control of feed flow but could not prevent steam generator water level from increasing to the high water level trip setpoint.

To prevent recurrence, applicable operating procedures are being revised to include guidelines for the operation of condensate booster pumps during unusual plant conditions or testing that affect the condensate or feedwater systems. Additionally, this event will be reviewed by all plant operators.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104

EXPIRES 8/31/85

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
DIABLO CANYON UNIT 2	05000323	85	010	000	2	OF 04

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

I. Initial Conditions

The Unit was in Mode 1 (Power Operation) at the 30 percent power level in the Power Ascension Test Program, with Condensate Booster Pump (SJ)(P) Set 2-3 and Main Feed Pump (SJ)(P) 2-1 in service supplying normal feed flow at a rate of 4,100,000 lbs-mass per hour to the steam generators (SG). Startup tests were being conducted on Main Feed Pump 2-2 and its associated recirculation valve.

II. Description of Event

A. Event:

1029 PDT, October 24, 1985, with Main Feed Pump 2-2 on full recirculation, Condensate Booster Pump Set 2-2 was started to provide additional condensate flow. At 1112 PDT, upon conclusion of Main Feed Pump 2-2 testing, pump speed was reduced to approximately 2000 RPM and Condensate Booster Pump set 2-3 was shut down. At the time Condensate Booster Pump Set 2-3 was shut down, condensate flow was approximately 5,200,000 lbs-mass per hour, due to Main Feed Pump 2-2 on full recirculation. This flow rate presented a full load condition on the Condensate Booster Pump 2-3 and dropped the suction pressure to the Main Feed Pump 2-1. The feedwater control system (JB) responded to the reduced pump suction pressure by increasing the speed of Main Feed Pump 2-1 and opening the main feedwater regulating valves.

At 1115 PDT, licensed operators observed low suction pressure on Main Feed Pump 2-1. Condensate Booster Pump Set 2-1 was started, resulting in a significant increase in feed flow to the steam generators. A licensed operator took manual speed control of Main Feed Pump 2-1; however, swelling of the cool feedwater raised the steam generator water level to the trip setpoint, resulting in a turbine-generator and reactor trip at 1128 PDT. The operators followed the appropriate emergency procedures and placed the Unit in a stable condition by 1201 PDT.

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

None

C. Dates and approximate times for major occurrences:

1. Event date: 1128 PDT, October 24, 1985
2. Unit stable: 1201 PDT, October 24, 1985

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

D. Other system or secondary functions affected:

None

E. Method of discovery:

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

F. Operator actions:

See event description

G. Safety System Responses:

1. The reactor trip and bypass breakers opened.
2. All plant systems responded normally with the exception of feedwater isolation valve (SJ)(ISV) FCV-439 (which will be reported in a later LER) which failed to close due to a control transformer (FCO)(XMR) failure, and Containment Fan Cooling (BK)(CFCU) Unit 2-3 which tripped on high starting current. The CFCUs are designed to start and operate at low speed on actuation by an ESF signal. On a bus auto transfer, the CFCUs will restart on the speed previously selected. Due to containment penetration overcurrent protection limitations, the thermal overloads occasionally trip when started on high speed.

III. Cause of Event

A. Immediate cause:

1. Starting and stopping of additional condensate booster pumps with an abnormal feedwater system lineup resulted in the feedwater control system failing to maintain steam generator water level within normal operating limits.

B. Root cause:

Operating procedures OP L-2, "Hot Standby to Minimum Load," and OP L-4, "Normal Operation at Power" provide insufficient guidance for operation of systems in other than normal plant conditions.

IV. Analysis of Event

Since all safety systems responded as designed, there were no adverse safety consequences or implications resulting from this event.

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V. Corrective Actions

- A. Operating Procedures OP L-2 and L-4 will be revised to include precautions to ensure that additional condensate booster pump capacity is provided during unusual plant conditions or testing that affects the condensate or feedwater systems.
- B. Instructions to plant operators have been installed on the control panel, stating that any fan cooler units running at high speed should be positioned so that in the event of an auto start signal they will restart on low speed. These post-trip occurrences did not have an impact on plant safety nor did they contribute to the reactor trip event.
- C. This event will be reviewed by all plant operators.

VI. Additional Information

- A. Failed components:
None
- B. Previous LERs on similar events:
None

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

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JAMES D. SHIFFER
VICE PRESIDENT
NUCLEAR POWER GENERATION

November 22, 1985

PGandE Letter No.: DCL-85-350

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

Re: Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2
Licensee Event Report 85-010-00
Procedural Inadequacy and Inattention Caused a High Steam Generator
Level Turbine Trip and Subsequent Reactor Trip

Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(iv), PGandE is submitting the enclosed Licensee Event Report concerning an event in which a steam generator high water level resulted in a 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,

J. D. Shiffer for
J. D. Shiffer

Enclosure

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

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