

December 14, 1994

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE PNO-IV-94-062

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by Region IV staff (Arlington, Texas) on this date.

<u>Facility</u>	<u>Licensee Emergency Classification</u>
Pacific Gas & Electric Co.	Notification of Unusual Event
Diablo Canyon 1 2	Alert
Avila Beach, California	Site Area Emergency
Dockets: 50-275, 50-323	General Emergency
	X Not Applicable

Subject: REACTOR TRIPS AT DIABLO CANYON, UNITS 1 AND 2

On December 14, 1994, at 12:26 a.m. PST, a disturbance on the 500 KV distribution system resulted in reactor trips at Diablo Canyon Units 1 and 2. The reactor trips were caused by reactor coolant pump (RCP) bus undervoltage on the 12 KV busses. Although a significant voltage transient occurred, power was never lost to these busses and the RCPs remained in operation. The reactor trip on RCP undervoltage is set at 70 percent (8050 volts) of normal bus voltage. 500 KV power was not lost during the disturbance; however, following the turbine trips, both units re-aligned to the startup (230 KV) power source. Following verification that disturbance on the 500 KV line had cleared, power to both units was realigned to be fed from the auxiliary (500 KV) power source.

During the transfer from auxiliary power to startup power, two diesel generators (DGs 1-1 and 2-2) autostarted but did not load onto their respective busses, since the busses remained energized. At the time of the reactor trips, DG 1-3 was in operation for routine surveillance testing supplying 4 KV Bus F. After the plant had been stabilized, DG 1-3 was paralleled with startup power to transfer loads prior to securing the DG. Apparently the DG voltage was not properly matched with startup voltage in that the DG voltage was significantly higher. Consequently, after closing the startup feeder breaker, the load on DG 1-3 immediately increased to approximately 3000 KW, at which point the DG 1-3 output breaker tripped on overcurrent. DG 1-3 has been declared inoperable pending further licensee investigation of the trip.

Both units are currently in Mode 3 and stable. The following equipment problems occurred during the plants' responses to the reactor trips:

Unit 1: After the reactor trip, 3 of the 12 40 percent steam dump valves were noted to have been partially open (25 percent) with no demand signal present. The valves closed when the operators placed the steam dump controllers in OFF/RESET. The three valves were subsequently isolated by securing air to the positioners.

Event recorder traces indicate that the pressurizer level decreased to approximately 5 percent during the transient. The licensee is investigating the cause of what may be too rapid a cooldown rate caused by the failure of the 40 percent steam dumps to fully close and possible overfeed from the auxiliary feedwater. Additionally, at the time of the

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0/1
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transient, charging was being supplied from the positive displacement pump. Flow capacity of the positive displacement pump is lower than that of the centrifugal charging pumps. A centrifugal charging pump was placed in service during the event in order to increase charging flow. There is some question of the timeliness of that action.

Containment Fan Cooling Unit (CFCU) 1-5 failed to start following the bus transfer from auxiliary power to startup power. Subsequent attempts to start the CFCU manually in slow speed also failed.

Unit 2: The rectifier that feeds Inverter 2-2 failed during the electrical transient. The inverter automatically realigned to receive power from its associated battery bus. There was no interruption of power to the 120 volt vital loads supplied by the inverter.

Upon notification of the reactor trips, the resident inspector responded to the site. The resident inspector is being assisted by two additional Region IV inspectors and will continue to closely follow the licensee's response to the reactor trips and investigation of the initial cause of the grid disturbance and subsequent equipment problems.

The 500 KV grid disturbance affected eight western states: California, Arizona, Nevada, Utah, Oregon, Washington, Idaho, and Montana. Pacific Gas and Electric Company, the licensee for Diablo Canyon, said that the disturbance might have been caused by a fault on a 500 KV transmission line between their Gates substation and Los Banos, California.

WNP-2, Palo Verde, and San Onofre stations also experienced the effects of the grid disturbance. At WNP-2, which was operating at 100 percent power, several inverters tripped off line and re-aligned to their alternate power sources. No other equipment problems were observed. Palo Verde Units 1 and 2 were operating at 98 and 100 percent power respectively and experienced the grid perturbations for about seven minutes. Both Palo Verde units down powered approximately 1 percent and successfully rode out the perturbations. The units received inverter alarms on the Class 1E electrical system, but no inverters were lost. No other equipment problems were observed. Unit 3 was in Mode 5 at the time and experienced no equipment problems.

At San Onofre Unit 2 (operating at 98 percent power at the time), one of four high pressure turbine governor valves went closed as a result of the grid perturbation. This resulted in the loss of approximately 40 megawatts (electrical). After subsequent testing of the valve, the valve was reopened. No other effects on plant equipment were observed. Grid frequency oscillations ranged from 59.2 to 60.5 Hz. San Onofre Unit 3 (operating at 97 percent power at the time) did not observe any effects from the grid disturbance.

The state of California has been informed. There has been news media interest in this event and the news media have been briefed by Lyle LaFaver, a spokesman for Pacific Gas and Electric. Region IV received notification of this occurrence by telephone from the licensee at 1:31 a.m. PST on December 14, 1994. Region IV has informed the EDO, NRR, and PA.

This information herein has been discussed with the licensee and is current as of 11 a.m. PST.

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