REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8709290154 DOC. DATE: 87/09/24 NOTARIZED: NO DOCKET #
FACIL: 50-275 Diablo Canyon Nuclear Power Plant, Unit 1, Pacific Ga 05000275
AUTH. NAME AUTHOR AFFILIATION
SISK, D. P. Pacific Gas & Electric Co.
SHIFFER, J. D. Pacific Gas & Electric Co.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-014-00: on 870825, diesel generator 1-3 inadvertently autostarted. Caused by operator pulling wrong fuse while returning vital bus feeder breaker to operability following planned maint. Breaker close signal reinitiated. W/870924 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES 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
	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	RGN5 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

TOTAL NUMBER OF COPIES REQUIRED: LTTR 45 ENCL 44

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
DIABLO CANYON UNIT 1	0 5 0 0 0 2 7 5	1 OF 0 5

TITLE (4) INADVERTENT STAR TOF DIESEL GENERATOR 1-3 WHEN OPERATOR PULLED WRONG FUSE WHILE RETURNING A VITAL BUS FEEDER BREAKER TO OPERABILITY FOLLOWING PLANNED MAINTENANCE

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)
										0 5 0 0 0
0 8	2 5	8 7	8 7	0 1 4	0 0	0 9	2 4	8 7		0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (11)
1	[X] 10 CFR 50.73(a)(2)(iv)
POWER LEVEL (10): 1 0 0	[ ] OTHER (Specify in Abstract below and in Text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (AREA CODE)
DAVID P. SISK, REGULATORY COMPLIANCE ENGINEER	8 0 5 5 9 5 - 7 3 5 1

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
[ ] YES (If yes, complete EXPECTED SUBMISSION DATE)	[X] NO				

ABSTRACT (16)

On August 25, 1987, at 2121 PDT, with the unit in mode 1 (Power Operation), diesel generator 1-3 autostarted and loaded onto 4 kV bus F. The autosequenced loads did not load onto the bus. The control room operator, while performing his verification of operating equipment, observed that the charging pump had stopped. The control room operator immediately started a charging pump to provide reactor coolant pump seal injection. After the bus was transferred back to auxiliary power, the diesel generator was secured and returned to normal standby mode.

The 4-hour nonemergency report required by 10 CFR 50.72 was made at 2335 PDT, August 25, 1987.

This event was caused by personnel error when an unlicensed operator, in the process of returning a vital bus feeder breaker to operability following preventive maintenance, inadvertently pulled the wrong fuse. The autosequencing loads did not load onto the bus due to the apparent undervoltage condition sensed on the bus and a design feature in the breaker which locks in the trip condition to prevent the breaker from cycling. Reinitiating the breaker close signal allowed the breakers to close.

To prevent recurrence, an incident report was issued and will be reviewed with all operators. Lessons learned from this event will be incorporated into the initial nonlicensed operator training program. An additional investigation will be performed to determine if additional corrective actions may be necessary to preclude recurrence.

1691S/0051K

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

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

I. Initial Conditions

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

II. Description of Event

A. Event:

On August 25, 1987, at 2121 PDT, with the unit in Mode 1 (Power Operation), diesel generator (EK)(DG) 1-3 autostarted (an engineered safety feature (ESF) actuation) and loaded onto 4 kV bus F (EA)(BU). The autosequenced loads did not load onto the bus due to the apparent undervoltage (UV) condition sensed on the bus and a design feature in the breaker which locks in the trip condition to prevent the breaker from cycling. After two unsuccessful attempts to transfer the bus back to its normal auxiliary power supply, Electrical Maintenance was called in to investigate the problem. One additional unsuccessful attempt to transfer the bus back to auxiliary power was made during troubleshooting. Temporary disconnection of the automatic bus transfer circuit eliminated the cause of the problem, which was a design characteristic of the circuit. The 4 kV bus F was successfully transferred back to auxiliary power on August 26, 1987, at 0435 PDT. Diesel generator 1-3 was secured and returned to normal standby mode. The 4-hour nonemergency report required by 10 CFR 50.72(2)(ii) was made at 2335 PDT, August 25, 1987.

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

None

C. Dates and approximate times for major occurrences:

1. August 25, 1987, at 2121 PDT: Inadvertent start of DG 1-3 (event date).

2. August 25, 1987, at 2335 PDT: 4-hour report made per 10 CFR 50.72(b)(2)(ii).

3. August 26, 1987, at 0435 PDT: Bus F transferred back to auxiliary power. DG 1-3 secured.

4. August 26, 1987, at 0535 PDT: NRC updated per 10 CFR 50.72(c)(2)(i).

D. Other systems or secondary functions affected:

None

E. Method of discovery:

The DG start was immediately apparent due to alarms and indications in the control room.

F. Operator actions:

Immediately after the DG autostart and transfer of 4 kV vital bus F to DG 1-3, the control room operator, while performing his verification of operating equipment, observed that the bus F loads did not autosequence onto the bus. A charging pump was immediately started to provide reactor coolant pump seal injection, and normal RCS letdown was established. After two attempts to transfer bus F back to auxiliary power, Electrical Maintenance was called to investigate the problem. A third unsuccessful attempt was made by Electrical Maintenance while troubleshooting. Temporary disconnection of the automatic bus transfer ciruit eliminated the cause of the problem, which was a design characteristic of the circuit. In accordance with an on-the-spot change to OP J-6B, 4 kV bus F was successfully transferred back to auxiliary power.

G. Safety system responses:

None

III. Cause of Event

A. Immediate cause:

1. A nonlicensed operator, while attempting to return component cooling water pump 1-1 to operability in accordance with approved plant procedures following planned maintenance, pulled the wrong fuse, producing a 4 kV bus F undervoltage signal and the resulting DG autostart.

2. The autosequenced loads did not automatically load onto the bus due to the nonvalid 4 kV bus F undervoltage signal that resulted from the operator pulling the wrong fuse. The autosequenced loads did not load onto the bus when the fuse was restored because the breaker protection circuits provided a locked-in breaker trip signal.

B. Root cause:

1. The root cause of the inadvertent diesel generator start was personnel error (cognitive). Also contributing to the event were the tight working conditions and inadequate fuse labeling. In addition, the nonlicensed operator was unaware that devices in this breaker cabinet affected anything besides the equipment associated with this breaker.

2. The undervoltage signal resulting from the pulled fuse was sensed by all the breakers with undervoltage protection that are fed off bus F. This resulted in a nonvalid trip signal to each breaker with undervoltage protection. Since the breaker close signals came in (when their respective autosequence timers timed out) while the the undervoltage trip signal was still in, a breaker protection feature designed to prevent the breakers from cycling due to conflicting signals locked in the breaker trip condition. Thus, when the fuse was reinstalled, thereby removing the nonvalid undervoltage signal, the autosequenced loads still did not load onto the bus.

IV. Analysis of Event

DG 1-3 functioned per design by autostarting and loading onto bus F. However, the autosequenced loads did not load onto the bus. The control room operator immediately started a charging pump. Component cooling water was available to provide cooling to reactor coolant pump seals per design. The loss of the charging pump was apparent due to the low seal flow alarm, the low charging flow alarm, and the letdown isolation alarm.

Other components and systems affected by the failure of the sequential loads to load were not immediately significant.

The other vital buses were not affected by this event, thus no adverse safety consequences or implications resulted from this event.

V. Corrective Actions

A. An incident report was issued on this event, and associated corrective actions will be reviewed by all operators.

B. Lessons learned from this event will be incorporated into the initial nonlicensed operator training program.

C. Operations and Electrical Maintenance will investigate and implement additional actions as necessary to prevent inadvertent removal of fuses such as on this 4 kV switchgear.

D. To demonstrate the correctness of the analysis performed during and after this event, a temporary test was successfully performed August 27, 1987, verifying the proper operation of the diesel generator in an undervoltage condition.

E. An additional investigation will be performed to determine if additional corrective actions may be necessary to preclude recurrence.

VI. Additional Information

A. Failed components:

None

B. Previous LERs on similar events:

1. LER 2-86-025, "Automatic Start of DG 2-2 Due to Personnel Error" - A DG was started when a plant electrician inadvertently grounded a terminal while performing planned maintenance. The corrective action, training on precautions to be exercised while working on energized circuits, was not effective in preventing this event because this event did not involve a technician performing maintenance.

2. LER 2-87-007, "Automatic Start of DG 2-1 Due to Personnel Error" - A technician failed to seek assistance when a problem was discovered during performance of an I&C test. In addition, the test procedure data sheet was incorrect. The corrective actions of revising I&C test procedures and counseling an I&C technician could not have been effective in preventing this event.

3. LER 1-87-013, "Containment Isolation Due to Personnel Error" - An inadvertent containment ventilation isolation (CVI) occurred when nonlicensed plant operators performed a source check on the wrong radiation monitor. This CVI occurred only one day before the autostart of DG 1-3 and both events involved a personnel error on the part of a nonlicensed operator performing a function in accordance with a procedure, but on the wrong component. Corrective actions listed in Section V. A., B., and E. of this report are applicable to both events.

PACIFIC GAS AND ELECTRIC COMPANY

PG&E

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JAMES D. SHIFFER
VICE PRESIDENT
NUCLEAR POWER GENERATION

September 24, 1987

PGandE Letter No.: DCL-87-237

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

Re: Docket No. 50-275, OL-DPR-80
Diablo Canyon Unit 1
Licensee Event Report 1-87-014-00
Inadvertent Start of Diesel Generator 1-3 When Operator Pulled Wrong Fuse While Returning Feeder Breaker to Operability Following Planned Maintenance

Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(iv), PGandE is submitting the enclosed Licensee Event Report concerning the inadvertent automatic start of diesel generator 1-3 during preventive maintenance.

This event 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 C Carroll for
J. D. Shiffer

Enclosure

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

DC1-87-OP-N101

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