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RUEGER,G.M. Pacific Gas & Electric Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 93-009-00:on 931101,unplanned start of DG 1-3 inadvertently initiated by licensed operator by actuating wrong startup bus undervoltage relay.Will introduce new operations policy on surveillance procedures.W/931124 ltr.

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Gregory M. Rueger
Senior Vice President and
General Manager
Nuclear Power Generation

November 24, 1993

PG&E Letter No. DCL-93-268

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 1-93-009-00
Actuation of Wrong Undervoltage Relay Causes Unplanned Diesel Generator Start (ESF Actuation) Due to Personnel Error

Gentlemen:

Pursuant to 10 CFR 50.73(a)(2)(iv), PG&E is submitting the enclosed Licensee Event Report regarding an unplanned diesel generator start (ESF Actuation) due to personnel error. A four-hour, non-emergency report was made to the NRC in accordance with 10 CFR 50.72.

This event did not adversely affect the health and safety of the public.

Sincerely,

Gregory M. Rueger

cc: Bobby H. Faulkenberry
Ann P. Hodgdon
Mary H. Miller
Sheri R. Peterson
CPUC
Diablo Distribution
INPO

DC1-93-OP-N046

Enclosure

1158S/85K/KWR/2246

IE22

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 6

TITLE (4) ACTUATION OF WRONG UNDERVOLTAGE RELAY CAUSES UNPLANNED DIESEL GENERATOR START (ESF ACTUATION) DUE TO PERSONNEL ERROR

EVENT DATE (6)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MON	DAY	YR	YR	SEQUENTIAL NUMBER	REVISION NUMBER	MON	DAY	YR	FACILITY NAMES	DOCKET NUMBER (S)
11	01	93	93	- 0 0 9 -	0 0	11	24	93		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	1
POWER LEVEL (10)	1 0 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)

X 10 CFR 50.73(a)(2)(iv)

___ 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 - SENIOR REGULATORY COMPLIANCE ENGINEER	805	545-4420

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 November 1, 1993, routine surveillance testing was scheduled for Diesel Generator 1-1 on Unit 1 and Diesel Generator 2-2 on Unit 2. On November 1, 1993, at 2252 PST, with Unit 1 in Mode 1 (Power Operation) at 100 percent power, an unplanned start of Diesel Generator 1-3 was initiated when a licensed operator inadvertently actuated the wrong startup bus undervoltage relay. This event constitutes an engineered safety feature actuation. The control room operators returned all actuated equipment to normal status.

On November 2, 1993, at 0020 PST, a four-hour, non-emergency report was made to the NRC in accordance with 10 CFR 50.72 (b)(2)(ii).

The root cause of this event was personnel error (cognitive), inattention to detail, by the operator actuating the startup bus undervoltage switch.

An Operations Incident Summary will be prepared discussing this event and introducing the new Operations Policy on performing surveillance test procedures. In addition, labeling will be provided on the 4kV switchgear interconnecting doors and the labeling on the startup bus undervoltage relay cutout switch will be enhanced.

I. Plant Conditions

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

II. Description of Event

A. Summary:

On November 1, 1993, at 2252 PST while performing Surveillance Test Procedure (STP) M-9A, "Diesel Engine Generator Routine Surveillance Test," a licensed operator inadvertently actuated the Diesel Generator [EB][DG] (DG) 1-3 startup bus [EA][BU] undervoltage relay [EA][27] rather than the DG 1-1 startup bus undervoltage relay as required by the STP. This event constitutes an engineered safety feature (ESF) actuation. The control room [NA] operators returned all actuated equipment to normal status.

B. Background:

STP M-9A is a routine surveillance test used to demonstrate operability of the diesel generators (DGs). In accordance with the schedule for DG starts, DG 1-1 was to be started by a simulated startup bus undervoltage condition. This is accomplished by de-energizing the startup bus undervoltage relay located at the engineered safeguard relay board [RLY][PL] in 4kV Bus H room [NF][SWGR]. This test sequence is a timed start of the DG which necessitates coordination between the 4kV Bus H room and the control room. The test procedure step that was being performed at the time of the inadvertent DG 1-3 start requires concurrent verification.

STP M-9I, "Diesel Generator Testing Frequency Determination," provides a means of documenting all diesel starts, the conditions under which the diesel starts (manual or automatic start signal), the reason for the start, and the success of the start.

Departmental Level Administrative Procedure (DLAP) OP1-DC2, "Verification of Operating Activities," provides guidance that whenever the configuration of applicable plant systems is changed, verification is required to ensure that the correct components are manipulated and placed in the desired position. Procedure DLAP OP1.DC2 states that concurrent verification is the act of checking that a component that is to be manipulated is the correct component and that the individual assigned to manipulate such component intends to perform the proper actions prior to actual component manipulation. In this case, it is inferred that the person assigned to manipulate the components and the individual assigned as the verifier are in direct contact and communication.

C. Event Description:

On November 1, 1993, STP M-9A was scheduled for DG 1-1 and 2-2 during the night shift. Prior to the performance of STP M-9A, tailboard briefings were held in the control room to discuss all the test prerequisites, precautions and necessary operational tests. Following the tailboards, which were conducted by the Senior Control Operators (SCO) and the Shift Technical Advisor, the Utility Senior Control Operator (USCO) proceeded to the Unit 1 4kV Bus G (DG 1-2). The USCO then called the control room to establish communications prior to de-energizing the relay and to verify the correct Bus room. The SCO notified the USCO that the test was to be conducted on DG 1-1 and directed him to the 4kV Bus H room for DG 1-1.

The USCO then proceeded to what he believed was the 4kV Bus H room which, however, turned out to be the 4kV Bus F room. The USCO called the control room SCO again from this room. The USCO informed the control room that he was in the 4kV Bus H room, which is what he thought at the time. The SCO verified that the Bus H room was the correct bus room and gave permission to proceed with the test.

The operator then actuated the DG 1-3 startup bus undervoltage relay (27 HFU, Bus F) instead of the DG 1-1 startup bus undervoltage relay (27 HHU, Bus H) as required by the STP. Actuation of this relay initiated an unplanned start of DG 1-3. This event constitutes an ESF actuation.

On November 1, 1993, at 2252 PST the control room staff observed that DG 1-3 started instead of DG 1-1. DG 1-3 was run for approximately five minutes and then shutdown. A four-hour, non-emergency report was made pursuant to 10 CFR 50.72(b)(2)(ii) on November 2, 1993, at 0020 PST.

On November 2, 1993, another tailboard was held and at 0331 PST, STP M-9A was performed without incident for DG 1-1.

D. Inoperable Structures, Components, or Systems that Contributed to the Event:

None.

E. Dates and Approximate Times for Major Occurrences:

1. November 1, 1993 @ 2252 PST: Event Date/Discovery Date: Inadvertent start of DG 1-3 during STP M-9A.
2. November 2, 1993 @ 0020 PST: A four-hour, non-emergency report was made to the NRC in accordance with 10 CFR 50.72(b)(2)(ii).

F. Other Systems or Secondary Functions Affected:

None.

G. Method of Discovery:

The event was immediately apparent to plant operators due to alarms [NA][ALM] and indications [NA][EI] received in the control room.

H. Operator Actions:

DG 1-3 was run for approximately five minutes and then shutdown.

I. Safety System Responses:

None.

III. Cause of the Event

A. Immediate Cause:

Relay 27 HFU (Bus F) was de-energized instead of the relay 27 HHU (Bus H).

B. Root Cause:

The root cause of this event was personnel error (cognitive), inattention to detail, by the operator actuating the startup bus undervoltage switch [EA][27][HS]. The operator had a preconceived notion that Unit 2 testing (DG 2-2) was to be performed first. The operator was actually in the 4kV switchgear room [EB][SWGR][NF] associated with DG 1-2, and when directed to proceed to the room associated with Unit 1 Bus H, the operator turned as if in Unit 2 and actually entered the Unit 1 Bus F switchgear room.

Contributory causes for this event are: (1) the operator in the field had no written instructions in-hand so the self-verification process could not be effectively implemented due to the similarity of the labeled components in the 4kV switchgear rooms, (2) the concurrent verification requirements of STP M-9A were not clear to the operators (test performers felt that the control room operators provided the concurrent verification), (3) the labelling on the buswork and surrounding equipment was obscured by draped plastic associated with the ongoing block wall modifications being performed in the 4kV switchgear rooms.

IV. Analysis of the Event

Since all equipment performed as designed during this event, the inadvertent actuation of the diesel generator ESF component did not adversely affect the health and safety of the public.

V. Corrective Actions

A. Immediate Corrective Actions:

The control room staff was promptly made aware of the start of DG 1-3 through alarms and observations. The bus undervoltage relay was re-energized and the DG was allowed to run for approximately five minutes after which time it was shutdown and returned to normal automatic mode.

B. Corrective Actions to Prevent Recurrence:

1. A new operations department policy will be developed on the performance of STP's. This policy will include direction on performing verification and requirements for having paperwork in-hand.

2. An Operations Incident Summary will be prepared that discusses this event and introduces the new Operations Policy on performing STP's.

3. Lamocoids/labels will be installed on the interconnecting doors between the 4kV vital bus rooms.

4. The lamocoids on the startup bus undervoltage relay switch will be enhanced to include the DG number that will start as a result of operating the relay cutout.

VI. Additional Information

A. Failed Components:

None

B. Previous LERs on Similar Problems:

Several previous events have been reported that were caused by improper self-verification and concurrent verification techniques, including LER 1-91-011 (Actuation of Wrong Test Switch Causes Unplanned ESF Actuation), LER 1-91-005-00 (Actuation of Wrong Test Switch Causes Unplanned Diesel Generator Start), LER 1-90-004 (Technical Specification 3.0.3 Entry due to Personnel Error), LER 1-89-012 (Fuel Handling Building Ventilation System Transfer to

the Iodine Removal Mode Due to Personnel Error), LER 1-88-023 (Containment Ventilation Isolation Inadvertently Initiated due to Operator Error), and LER 1-88-020 (Reactor Trip from Overtemperature - Delta Temperature Protection Logic Due to Personnel Error).

Corrective actions to prevent recurrence included emphasizing the importance of self-verification with plant operators and technicians, counselling of the involved personnel, and issuance of an Operations Department Policy to specify in detail which type of verification is to be utilized for various operating activities. The corrective actions for these LER's appear to have been adequate in reducing instances of improper verification activities causing inadvertent component actuations or plant trips, as evidenced by the subsequent lack of repeat events. The corrective actions resulting from the current inadvertent starting of DG 1-3 will further reduce the likelihood of further occurrences.