

PRIORITY ATTENTION REQUIRED MORNING REPORT - REGION IV AUGUST 2, 1994

Licensee/Facility:

Southern California Edison & San Diego Gas & Electric Co.
San Onofre 3
ICE
San Clemente, California
Dockets: 50-362
PWR/CE

Notification:

MR Number: 4-94-0073
Date: 08/02/94
CALL FROM LICENSEE TO FIELD OFF

Subject: ELECTRICAL FAULT IN CONTROL ROOM EQUIPMENT

Reportable Event Number: N/A

Discussion:

The purpose of this Morning Report is to provide an updated root cause for the electrical fire that occurred in the control room at 2:00 a.m. on July 27, 1994. On July 27, 1994, Unit 3 operators were increasing load on train A Emergency Diesel Generator (EDG) 3G002 for a semiannual surveillance test. Volts Amps Reactive (VAR) indication became erratic and the operators observed smoke and sparks coming from the main control room panel (CR63), from which the diesel was being operated. Small flames were observed. The operators tripped the diesel and extinguished the overheated components in the rear of the panel within two minutes. Emergency Diesel Generator 3G002 was declared inoperable. Subsequent investigation revealed overheating damage to a power supply, twelve meters and 18 wires associated with panel CR63.

The licensee determined that the cause of the fire was an electrical

short in the safety-related 125 VDC circuits being supplied from battery 3D1. The initiating event for the short was bolt failure on Roto-switch RTS-9. The licensee had experienced previous failures of this type of switch as discussed in LER 50-362/93-007-00. The bolt failure on switch RTS-9 caused an open circuit on the current transformer (CT) secondary winding feeding the EDG VAR transducer. When the primary voltage to the CT was energized, the open-circuited CT secondary winding voltage rose to a high value and shorted across terminals within the EDG VAR transducer. This short tied the negative bus of the 125 VDC 3D1 bus to ground. The resultant transient caused the failure of a capacitor in the EDG differential relay. The capacitor shorted the 125 VDC 3D1 positive bus to ground. With solid grounds on both the positive and negative 125 VDC 3D1 buses, the intermediate meter circuits were damaged. The fault was isolated by wiring failure.

The licensee replaced various equipment associated with EDG 3G002, and retested the EDG satisfactorily by starting the EDG and performing a one-hour loaded run. The licensee inspected the other EDG roto-switches in Units 2 and 3 and did not identify any additional failures. In addition, the licensee corrected problems identified in other associated circuits on the 3D1 bus.

The licensee committed to replace the Roto-switches during the next refueling outage for each unit and to review the design of the 3D1 bus

and perform checks as necessary to ensure that no additional equipment
on
this bus was damaged by the transient. Further, the licensee committe
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to change the circuit design to isolate the EDG meter circuits from th
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main 3D1 bus.

Regional Action:

The Region IV staff followed the licensee's root cause determination a
nd
corrective actions and held conference calls with licensee management.

The resident and project inspectors will follow the licensee's design
review and any associated actions taken to verify that all equipment
associated with 125 VDC bus 3D1 is undamaged.

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