

Southern California Edison Company

P. O. BOX 128

SAN CLEMENTE, CALIFORNIA 92674-0128

R. W. KRIEGER
VICE PRESIDENT
NUCLEAR GENERATION

October 11, 1994

TELEPHONE
714-366-6255

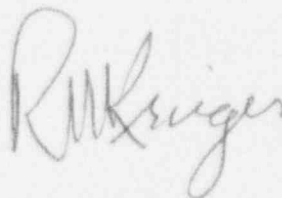
U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: Docket No. 50-362
30-Day Report
Licensee Event Report No. 94-002
San Onofre Nuclear Generating Station, Unit 3

Pursuant to 10 CFR 50.73(d), this submittal provides the required 30-day written Licensee Event Report (LER) for an occurrence involving a momentary loss of voltage on a class 1E electrical system and the resulting actuation of the Train B Toxic Gas Isolation System. Neither the health nor the safety of plant personnel or the public was affected by this occurrence.

If you require any additional information, please so advise.

Sincerely,



Enclosure: LER No. 94-002

cc: L. J. Callan, Regional Administrator, NRC Region IV
A. B. Beach, Director, Division of Reactor Projects, NRC,
Region IV
K. E. Perkins, Jr., Director, Walnut Creek Field Office, NRC
Region IV
J. A. Sloan (USNRC Senior Resident Inspector, Units 2 and 3)
M. B. Fields, NRC Project Manager, San Onofre Units 2 & 3
Institute of Nuclear Power Operations (INPO)

9410170079 941011
PDR ADDCK 05000362
S PDR

JE22

LICENSEE EVENT REPORT (LER)																		
Facility Name (1) SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3												Docket Number (2) 0 5 0 0 0 3 6 2 1				Page (3) of 0 3		
Title (4) Class 1E 4 kV Bus Loss of Voltage Due to Jarring of Door-mounted Protective Relay																		
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	9	1	2	9	4	9	4	---	---	---	NONE				0 5 0 0 0 0			
<div style="display: flex; justify-content: space-between;"> <div> OPERATING MODE (9) 1 POWER LEVEL (10) 0 9 7 </div> <div> THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11) <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> 20.402(b) <input type="checkbox"/> 20.405(a)(1)(i) <input type="checkbox"/> 20.405(a)(1)(ii) <input type="checkbox"/> 20.405(a)(1)(iii) <input type="checkbox"/> 20.405(a)(1)(iv) <input type="checkbox"/> 20.405(a)(1)(v) </div> <div> <input type="checkbox"/> 20.405(c) <input type="checkbox"/> 50.36(c)(1) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(i) <input type="checkbox"/> 50.73(a)(2)(ii) <input type="checkbox"/> 50.73(a)(2)(iii) </div> <div> <input checked="" type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 50.73(a)(2)(x) </div> <div> <input type="checkbox"/> 73.71(b) <input type="checkbox"/> 73.71(c) <input type="checkbox"/> Other (Specify in Abstract below and in text) </div> </div> </div> </div>																		
LICENSEE CONTACT FOR THIS LER (12)																		
Name R. W. Krieger, Vice President, Nuclear Generation												TELEPHONE NUMBER AREA CODE 7 1 4 3 6 8 - 6 2 5 5						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																		
CAUSE	SYSTEM	COMPONENT	MANUFAC-	REPORTABLE	////////	CAUSE	SYSTEM	COMPONENT	MANUFAC-	REPORTABLE	////////							
			TURER	TO NPRDS	////////				TURER	TO NPRDS	////////							
					////////						////////							
					////////						////////							
SUPPLEMENTAL REPORT EXPECTED (14)												Expected Submission Date (15)		Month Day Year				
<input type="checkbox"/> Yes (If yes, complete EXPECTED SUBMISSION DATE)												<input checked="" type="checkbox"/> NO						
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																		

On 09/12/94, at 1237, with Unit 3 at approximately 97 percent power and all relevant systems and components operable, the normal supply breaker to bus 3A06 [EA] opened due to an inadvertent actuation of its overcurrent lockout relay, causing a momentary loss of voltage on bus 3A06 and a Loss of Voltage signal. The power supply for bus 3A06 automatically transferred to Unit 2 through the bus cross tie. The associated Unit 3 diesel generator automatically started and remained unloaded, as designed. The momentary loss of voltage also resulted in a Train B Toxic Gas Isolation Signal and associated component actuations, as expected.

The cause of this event was inadvertent actuation of the breaker due to mechanically induced actuation of its overcurrent lockout relay. When a utility maintenance worker attempted to repair a door fastener, the worker jarred the door, causing contacts on the relay to actuate, opening the breaker.

Edison restored normal power to bus 3A06 within the 72 hours allowed by the Technical Specifications. The maintenance worker was reminded of the need to be careful not to bump or jar panels or cabinets that may contain relays which could cause a plant trip or ESFAS actuation. Edison will complete a Division Investigation Report and will implement further corrective actions, if required.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 3	DOCKET NUMBER 05000362	LER NUMBER 94-002-00	PAGE 2 of 3
---	---------------------------	-------------------------	----------------

DESCRIPTION OF THE EVENT:

Plant: San Onofre Nuclear Generating Station, Unit 3
 Reactor Vendor: Combustion Engineering
 Event Date: September 12, 1994
 Mode: Mode 1, Power Operation
 Power: 97%

The Unit 3 Class 1E 4 kV electrical distribution system [EA] has two independent trains which provide power to the associated train of Engineered Safety Feature (ESF) [B] components. The normal power supply for each of the Class 1E 4 kV buses [BU] (3A04 for Train A and 3A06 for Train B) is from its respective Unit 3 reserve auxiliary transformer [XFMR] which is energized from the offsite power grid via the station switchyard. The preferred alternate power source for each bus is from the same train Unit 2 bus via bus tie circuit breakers [52]. Bus 3A04 and bus 3A06 each has an associated emergency diesel generator (EDG) [EK] which can provide power to the bus via an output circuit breaker.

On 09/12/94, at 1237, with Unit 3 at approximately 97 percent power and all relevant systems and components operable, normal reserve auxiliary transformer supply breaker 3A0618 [52], which was supplying power to bus 3A06, opened due to an inadvertent actuation of the breaker's overcurrent lockout relay [86], causing a momentary loss of voltage on bus 3A06 and a Loss of Voltage (LOV) signal.

The power supply for bus 3A06 automatically transferred to the Unit 2 1E Train B 4 kV bus 2A06 through the bus cross tie. The associated Unit 3 Train B diesel generator 3G003 automatically started and remained unloaded, as designed. The momentary loss of voltage also resulted in a Train B Toxic Gas Isolation Signal (TGIS) [VI] and associated component actuations, as expected. Because the LOV signal is an Engineered Safety Feature Actuation Signal (ESFAS), Edison reported the LOV in a 4-hour non-emergency notification in accordance with 10CFR50.72(b)(2)(ii) and is submitting this LER to report the LOV and TGIS actuations in accordance with 10CFR50.73(a)(2)(iv).

CAUSE OF THE EVENT:

The cause of this event was inadvertent actuation of breaker 3A0618 due to mechanically induced actuation of its overcurrent lockout relay 186-1 (General Electric Model 12HFA151A6F Type HFA). The 186-1 relay is mounted on the door of electrical cubical 3A0618. When a maintenance worker (utility maintenance personnel) attempted to repair one of ten screws which hold the door closed, the worker jarred the door, causing contacts on the 186-1 relay to actuate and open the breaker. Edison later reproduced the failure with breaker 3A0618 open by jarring the door while it was unsecured by door fasteners, causing the same contacts on overcurrent lockout relay 186-1 to actuate.

This door-jarring incident created a sudden impact force to relay 186-1 which can be compared to a rubber hammer blow striking the door with the relay. While relay 186-1 is seismically qualified, Edison's engineering judgment is that this impact force caused a greater peak acceleration than that experienced during seismic testing and that expected during a postulated seismic event. Based on seismic test results, relay 186-1 would not be expected to spuriously actuate during a postulated seismic event at San Onofre Nuclear Generating Station.

CORRECTIVE ACTIONS:

Edison restored the normal power supply to bus 3A06 at 13:45 on 09/13/94, within the 72 hours allowed by Technical Specification 3.8.1.1. The maintenance worker was reminded of the need to be careful not to bump or jar panels or cabinets that may contain relays which could cause a plant trip or ESFAS actuation. This caution is contained in the training provided to all employees having unescorted

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 3	DOCKET NUMBER 05000362	LER NUMBER 94-002-00	PAGE 3 of 3
---	---------------------------	-------------------------	----------------

access to the Protected Area. The success of this training is evidenced by the fact that this is the only reportable occurrence of an event involving such a relay actuation in the last three years. Edison will, however, complete a Division Investigation Report and will implement further corrective actions, if required.

SAFETY SIGNIFICANCE:

Because all systems functioned as designed, there is no safety significance to this event.

ADDITIONAL INFORMATION:

There have been three previous LERs within the past three years which involve unintentional ESFAS actuations caused by personnel actions and/or errors:

LER 2-91-013 reported a TGIS actuation due to personnel error while hanging clearance tags. An operator inadvertently opened the circuit breaker which supplies power to the TGIS Train A sample pump and analyzers. The operator immediately recognized his mistake and closed the circuit breaker.

LER 2-92-002 reported an automatic diesel generator start and a Control Room Isolation System (CRIS) [VI] actuation believed to have been caused by a technician inadvertently and unknowingly contacting an ESFAS DC supply breaker [72], causing it to open. The corrective actions for this event were to (1) install covers over the ESFAS DC power supply breakers and (2) implement temporary controls on the ESFAS cabinet doors.

LER 2-92-003 reported an automatic diesel generator start and a CRIS actuation caused by an incomplete evaluation of a planned test. Specifically, plant operators had initiated a functional test of the transfer tie breakers used to transfer Unit 3 bus 3A06 to its Unit 2 power supply but did not evaluate the impact of the test on the ESFAS. Other class 1E ESFAS power sources had been removed from service to allow for system maintenance. The momentary loss of power on 3A06 caused by the transfer test resulted in the ESFAS actuations, which functioned as designed.

None of these three events involved repair work on cabinet doors. Therefore, corrective actions for these previous events could not have been expected to prevent the 09/12/94 occurrence.

An additional event, involving a reactor trip and resulting ESFAS actuation, was reported in LER 2-92-012. An electrician performing thermography inspections opened the potential transformer [XPT] drawer of non-class 1E 6.9 kV bus 2A02, which caused 1) an undervoltage condition to be sensed on the bus, 2) the two reactor coolant pumps powered from the bus to trip on undervoltage, 3) the reactor to trip on low departure from nucleate boiling ratio, and 4) emergency feedwater actuation due to steam generator level shrinkage. In this event, plant design caused the potential transformer to deenergize upon opening of the drawer, and no jarring of any protective relays took place. Corrective actions focused on reemphasizing our critical components (unit trip hazards) program. Since this breaker, 3A0618, is not a unit trip hazard, corrective actions from the earlier event could not have been expected to prevent the 09/12/94 occurrence.