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 AUTH. NAME AUTHOR AFFILIATION
 MORGAN, H.E. Southern California Edison Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-006-00: on 890220, CRIS train B spurious actuation
 during transfer operation due to procedural deficiency.
 W/8 ltr.

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LICENSEE EVENT REPORT (LER)

Facility Name (1) SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2										Docket Number (2) 0 5 0 0 0 3 6 1				Page (3) 1 of 0 5			
Title (4) CONTROL ROOM ISOLATION SYSTEM (CRIS) TRAIN "B" SPURIOUS ACTUATION DURING TRANSFER OPERATION DUE TO PROCEDURAL DEFICIENCY																	
EVENT DATE (5)				LER NUMBER (6)				REPORT DATE (7)				OTHER FACILITIES INVOLVED (8)					
Month	Day	Year	Year	/// Sequential ///	/// Revision ///	Month	Day	Year	Facility Names				Docket Number(s)				
0 2	2 0	8 9	8 9	0 0 6	0 0	0 3	2 1	8 9	SONGS, UNIT 3				0 5 0 0 0 3 6 2				
OPERATING MODE (9) 1				THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)													
POWER LEVEL (10) 0 9 9				20.402(b)		20.405(c)		X		50.73(a)(2)(iv)				73.71(b)			
				20.405(a)(1)(i)		50.36(c)(1)				50.73(a)(2)(v)				73.71(c)			
				20.405(a)(1)(ii)		50.36(c)(2)				50.73(a)(2)(vii)				Other (Specify in			
				20.405(a)(1)(iii)		50.73(a)(2)(i)				50.73(a)(2)(viii)(A)				Abstract below and			
				20.405(a)(1)(iv)		50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)				in text)			
20.405(a)(1)(v)		50.73(a)(2)(iii)				50.73(a)(2)(x)											
LICENSEE CONTACT FOR THIS LER (12)																	
Name H. E. Morgan, Station Manager										TELEPHONE NUMBER AREA CODE 7 1 4 3 6 8 - 6 2 4 1							
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																	
CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS								
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)		Month	Day	Year			
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)																	

At 1842 on 2/20/89, with Unit 2 at 99% power and Unit 3 at 100% power, a Control Room Isolation System (CRIS) Train "B" spurious actuation occurred as a result of a brief interruption in power to the actuation relay during a transfer of the CRIS Train "B" radiation monitor RT-7825 power supply from Unit 2 to Unit 3. The actuation was verified to be spurious by observation of normal radiation levels on the Train "A" monitor. CRIS was reset and the ventilation lineup returned to normal at 1930. There is no safety significance to this event since radiation levels remained normal, and all CRIS Train "B" components operated in accordance with design.

A precaution in an earlier revision of the procedure governing the transfer operation had appropriately stated that a CRIS actuation would occur during the power supply transfer; thus, a CRIS actuation due to the transfer operation would have been considered preplanned. However, based upon a mis-communication between the procedure writer and a cognizant engineer, the precaution was revised to state that a CRIS actuation would occur if the normal/bypass switch for the monitor is not in the "bypass" position, implying that an actuation would not occur if the monitor is in "bypass". Consequently, with the monitor in bypass per the procedure, the operator performed the power supply transfer unaware that a CRIS actuation would occur.

The inadequate precaution has been changed to appropriately reflect the expected CRIS actuation during the transfer operation. A review of applicable radiation monitor operating procedures has confirmed that similar inadequate precautions regarding the normal/bypass switches do not exist. This event will be reviewed with appropriate procedure writing groups.

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Plant: San Onofre Nuclear Generating Station
Unit: Two
Reactor Vendor: Combustion Engineering
Event Date: 02/20/89
Time: 1842

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 1, Power Operation at 100% power.

B. BACKGROUND INFORMATION:

The Control Room Isolation System (CRIS) (EIIS System Code VI) consists of two independent trains of radiation monitors (RT-7824 (Train A) and RT-7825 (Train B)) (EIIS Component Code RIT), emergency ventilation supply (EVS) units (A-206 and A-207) (EIIS Component Code AHU), emergency air conditioning (EAC) units (E-418 and E-419) (EIIS Component Code ACU), cabinet area emergency air cooling units (E-423, E-424, E-426, and E-427) (EIIS Component Code ACU), and associated emergency isolation dampers (EIIS Component Code BDMP). Each radiation monitor can be powered from either Unit 2 or Unit 3, and is comprised of a particulate/iodine channel and a noble gas channel. Upon receipt of either a high radiation signal, instrument failure signal, or loss of power, the dampers operate to direct outside air through the EVS and EAC units, both of which contain filtration units (EIIS Component Code FLT), thus providing purified and cooled air to the control room and minimizing exposure to personnel.

A design change to install a normal/bypass switch has been recently completed on all the Engineered Safety Feature Actuation System (ESFAS) radiation monitors to facilitate work on the monitors and minimize spurious actuations. When in bypass, an ESFAS actuation due to a signal from the associated radiation monitor is prevented; however, an actuation may still occur from other inputs to the actuation circuitry (e.g., loss of power).

Procedural changes which do not require complete revisions are implemented by the issuance of Temporary Change Notices (TCNs). The specific changes implemented by the TCNs are highlighted with "change bars" in the adjacent margin to facilitate their review by qualified personnel.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 1842 on 2/20/89, with Unit 2 at 99% power and Unit 3 at 100% power, a CRIS Train "B" spurious actuation occurred as a result of a brief interruption in power to the actuation relay during a transfer of the RT-7825 power supply from Unit 2 to Unit 3. The actuation was verified to be spurious by observation of normal radiation levels on the Train "A" monitor. Several CRIS Train "B" components (E-419, A-206, E-419 isolation dampers) did not initially operate due to the time delay in the E-419 actuation circuitry being longer than the duration of the power interruption. After manually completing the actuation circuitry by manually starting E-419, A-206 and the E-419 isolation dampers operated properly. CRIS was reset and the ventilation lineup returned to normal at 1930.

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2. Inoperable Structures, Systems or Components that Contributed to the Event:
None.

3. Sequence of Events:

<u>TIME</u>	<u>ACTION</u>
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1846	CRIS Train "B" actuation occurred.
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1930	After verifying that the actuation was spurious, CRIS Train "B" was reset and the ventilation lineup returned to normal.
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4. Method of Discovery:

Control room indications and alarms alerted the operators of the CRIS Train "B" actuation.

5. Personnel Actions and Analysis of Actions:

The operators responded properly to the CRIS Train "B" actuation by: 1) verifying the actuation was spurious by observing normal radiation levels on CRIS Train "A" radiation monitor RT-7824; 2) verifying each CRIS Train "B" component actuated as required (and identifying that E-419, A-206, and the isolation dampers for E-419 did not actuate); 3) ascertaining why these components did not actuate (see section C.6 below); and 4) resetting CRIS and returning the ventilation lineup to normal.

6. Safety System Responses:

All CRIS Train "B" components actuated in accordance with design. E-419 did not initially operate due to the time delay in its actuation circuitry being longer than the duration of the power interruption to the CRIS actuation relay. A-206 and the E-419 isolation dampers did not start and open, respectively, due to their actuation prerequisite of E-419 being in operation. When E-419 was manually started, the actuation logic for A-206 and the E-419 isolation dampers was completed, and each of these components actuated as required.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

While transferring the RT-7825 power supply from Unit 2 to Unit 3 per procedure, power was momentarily interrupted to the CRIS Train "B" actuation relay, resulting in the actuation. The CRIS actuation, however, was not preplanned since the procedure governing the transfer operation did not explicitly identify that the actuation would occur.

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2. Intermediate Cause:

The procedure governing the transfer operation included an inadequate precaution which stated that a CRIS actuation would occur if the normal/bypass switch for the monitor is not in the "bypass" position, implying that an actuation would not occur if the monitor is in "bypass". However, even with the monitor bypassed, the transfer of RT-7825 from one unit to the other results in a brief interruption in power to the actuation relay, causing a CRIS Train "B" actuation, per design. Consequently, with the monitor in bypass per the procedure, the operator performed the power supply transfer unaware that a CRIS actuation would occur.

3. Root Cause:

In an earlier revision of the procedure, the precaution had appropriately stated that a CRIS actuation would occur during the power supply transfer, with no mention of the normal/bypass switch; thus, a CRIS actuation due to the transfer operation would have been considered preplanned. However, based upon a mis-communication between the procedure writer and a cognizant engineer following the installation of the normal/bypass switches, the procedure was revised by a TCN containing the inadequate precaution. Furthermore, the review of the revised precaution during the TCN review process, which may have identified the precaution as being inadequate, was not performed due to the inadvertent omission of the "change bars" in the margin next to the change.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

- a. The inadequate precaution in the procedure governing the CRIS monitor power supply transfer has been changed to correctly reflect the expected CRIS actuation during the transfer operation.
- b. This event has been discussed with the procedure writers involved.
- c. A review of applicable radiation monitor operating procedures was performed to determine if similar inadequate precautions regarding the normal/bypass switches exist. No other deficiencies were identified.

2. Planned Corrective Actions:

The omission of the change "bars" was determined to be an isolated case, and no further programmatic corrective action is planned. Nonetheless, this event will be reviewed with appropriate procedure writing groups.

F. SAFETY SIGNIFICANCE OF THE EVENT:

There is no safety significance to this event since radiation levels remained normal, and all Train "B" CRIS and CREACUS components operated in accordance with design.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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UNIT 2

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G. ADDITIONAL INFORMATION:

1. Component Failure Information:

None.

2. Previous LERs for Similar Events:

LER 2-88-020 described a spurious CRIS Train "B" actuation which occurred when RT-7825 was removed from service in accordance with the operating procedure. The section of the procedure regarding removing the monitor from service was amended to include a precaution that an actuation is expected.

LER 2-84-053 described a spurious FHIS for similar reasons to those stated for 2-88-020. The FHIS operating procedure was similarly amended.

3. Results of NPRDS Search:

Not applicable.

Southern California Edison Company

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March 21, 1989

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

Subject: Docket No. 50-361
30-Day Report
Licensee Event Report No. 89-006
San Onofre Nuclear Generating Station, Units 2 and 3

Pursuant to 10 CFR 50.73(a)(2)(iv), this submittal provides the required 30-day written Licensee Event Report (LER) for an occurrence involving the Control Room Isolation System. Since this event involved a system shared between Units 2 and 3, a single report is being submitted in accordance with NUREG-1022. This event had no effect on the health and safety of either plant personnel or the public.

If you require any additional information, please so advise.

Sincerely,

HEMog

Enclosure: LER No. 89-006

cc: F. R. Huey (USNRC Senior Resident Inspector, Units 1, 2 and 3)

J. B. Martin (Regional Administrator, USNRC Region V)

Institute of Nuclear Power Operations (INPO)

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