

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8804200267 DOC.DATE: 88/04/11 NOTARIZED: NO DOCKET #  
 FACIL:50-361 San Onofre Nuclear Station, Unit 2, Southern Californ 05000361  
 AUTH.NAME AUTHOR AFFILIATION  
 MORGAN,H.E. Southern California Edison Co.  
 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-004-00:on 880310,spurious control room isolation sys  
 actuation occurred due to spike on radiation monitor.

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

### NOTES:

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ARM/DCTS/DAB	1 1	DEDRO	1 1
NRR/DEST/ADS 7E	1 0	NRR/DEST/CEB 8H	1 1
NRR/DEST/ESB 8D	1 1	NRR/DEST/ICSB 7	1 1
NRR/DEST/MEB 9H	1 1	NRR/DEST/MTB 9H	1 1
NRR/DEST/PSB 8D	1 1	NRR/DEST/RSB 8E	1 1
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NRR/DREP/RAB 10	1 1	NRR/DREP/RPB 10	2 2
NRR/DRIS/SIB 9A	1 1	NRR/PMAS/ILRB12	1 1
REG-FILE 02	1 1	RES TELFORD,J	1 1
RES/DE/EIB	1 1	RES/DRPS DIR	1 1
RGN5 FILE 01	1 1		
EXTERNAL: EG&G GROH,M	4 4	FORD BLDG HOY,A	1 1
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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) SPURIOUS CONTROL ROOM ISOLATION SYSTEM ACTUATION DUE TO SPIKE ON RADIATION MONITOR RT-7825																	
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   3	1   0	8   8	8   8	--- 0   0   4	--- 0   0	0   4	1   1	8   8	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) 1   0   0 //////////////////////////////////// //////////////////////////////////// //////////////////////////////////// //////////////////////////////////// ////////////////////////////////////			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	////////						
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SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)		Month Day Year					
X Yes (If yes, complete EXPECTED SUBMISSION DATE)												0   9   1   5   8   8					
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																	

At 0925 on March 10, 1988, with Unit 2 and Unit 3 at 100% power, a Control Room Isolation System (CRIS) Train B actuation occurred when both channels of CRIS Train B radiation monitor RT-7825 spiked, resulting in the gas channel, RT-7825B2, exceeding its actuation setpoint. All CRIS Train B components were verified to operate in accordance with design. Air sample results verified the actuation to be spurious, and CRIS Train B was reset and the ventilation lineup returned to normal at 1110.

The radiation monitor cabling and detector module were inspected, but the cause of the actuation could not be determined. The investigation of the root cause is continuing, and a supplemental report will be submitted upon the completion of this investigation.

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

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 88-004-00	PAGE 2 OF 5
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Plant: San Onofre Nuclear Generating Station (SONGS)

Unit: 2

Reactor Vendor: Combustion Engineering

Event Date: March 10, 1988

Time: 0925

A. PLANT CONDITIONS AT THE TIME OF THE EVENT:

Mode: 1, Power Operation

B. BACKGROUND INFORMATION:

The Control Room Isolation System (CRIS) (EIIS System Code VI) consists of two independent trains of radiation monitors (RT-7824 and RT-7825) (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 is comprised of a particulate/iodine channel and a noble gas channel. Upon receipt of either a high radiation or instrument failure signal, 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.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 0925 on March 10, 1988, with Unit 2 and Unit 3 at 100% power, a CRIS Train B actuation occurred when both channels of CRIS Train B radiation monitor RT-7825 spiked, resulting in the noble gas channel, RT-7825B2, exceeding its actuation setpoint. All CRIS Train B components were verified to operate in accordance with design. Air sample results verified the actuation to be spurious, and CRIS Train B was reset and the ventilation lineup returned to normal at 1110.

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

None

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION  
UNIT 2

DOCKET NUMBER  
05000361

LER NUMBER  
88-004-00

PAGE  
3 OF 5

3. Sequence of Events:

TIME	ACTION
0920	Repairs and inspection of the RT-7825 control room module had been completed following a recent spurious actuation (reference LER 88-006, Docket No. 50-361). After observing no problems while monitoring RT-7825 for approximately one week, RT-7825 was declared operable.
0925	CRIS Train B actuation occurred when RT-7825 spiked.
0945	Verified CRIS Train B components actuated in accordance with design.
1000	Placed RT-7825 in "Alarm Defeat" to prevent further spurious actuations.
1110	After verifying the actuation to be spurious, reset CRIS Train B and returned ventilation lineup to normal.

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 each CRIS Train B component operated in accordance with design, and 2) verifying the actuation was spurious prior to resetting CRIS Train B and returning the ventilation lineup to normal.

6. Safety System Responses:

All CRIS Train B components functioned as designed.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

Both channels of the CRIS Train B radiation monitor RT-7825 spiked, resulting in the noble gas channel, RT-7825B2, exceeding its actuation setpoint and causing the actuation.

2. Root Cause:

After an extensive investigation, the root cause of this spurious actuation could not be determined.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 88-004-00	PAGE 4 OF 5
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As a result of recent spurious CRIS actuations caused by electrical noise on RT-7825 (Reference LER 2-88-006, Docket No. 50-361), an inspection had been performed and necessary repairs had been implemented on the RT-7825 control room module. The investigation to determine the root cause of this actuation therefore concentrated on the other components of the radiation monitor. However, the instrument rack-to-module connector, which had caused the previous spurious actuation, was inspected with no problems being noted.

The radiation monitoring cables related to RT-7825 were walked down to determine if any welding or transmission equipment could have caused the spurious signal. No evidence was found that would support this as the cause of the actuation.

The cables were also tested with a time-domain reflectometer (TDR), which checks for impedance changes along the signal path. Although a discontinuity in the impedance on the detector cable connector was indicated by one TDR measurement, subsequent TDR measurements did not reproduce this condition.

The entire signal line was checked for impedance mismatch. Also, the heat shrink was removed and solder joints inspected for various terminations. No discrepancies were found that would have caused the actuation.

The detector connector was checked to determine if any arc-over could occur between pins of the connector. No evidence of arc-over was found.

The detector was disassembled, inspected for deficiencies, and reassembled, after which a primary isotopic calibration was performed. No discrepancies were found in the detector that would have caused the actuation.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

TDR measurements taken after the RT-7825 inspection was completed show no unusual discontinuities in impedance and support the return to service of the monitor.

2. Planned Corrective Actions:

- a. The radiation monitor response has been observed for approximately 4 weeks and will be observed for approximately one additional week for any other problems. If any problems are identified, further corrective action will be determined at that time.
- b. The investigation of the root cause of the CRIS actuation is continuing. A supplemental LER will be submitted upon completion of this investigation.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION  
UNIT 2

DOCKET NUMBER  
05000361

LER NUMBER  
88-004-00

PAGE  
5 OF 5

F. SAFETY SIGNIFICANCE OF THE EVENT:

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

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Not applicable

2. Previous LERs on Similar Events:

Spurious CRIS actuations due to electrical noise have occurred and were most recently documented in LER 85-033 (Docket No. 50-361). In late 1985, the detector was replaced and the preamplifier was verified to be properly grounded, reducing the noise significantly. A spurious CRIS actuation due to electrical noise from unknown causes has not occurred since this was performed.

3. Results of NPRDS Search:

Not applicable

*Southern California Edison Company*

SAN ONOFRE NUCLEAR GENERATING STATION

P. O. BOX 128

SAN CLEMENTE, CALIFORNIA 92672

H. E. MORGAN  
STATION MANAGER

April 11, 1988

TELEPHONE  
(714) 368-6241

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

Subject: Docket No. 50-361  
30-Day Report  
Licensee Event Report No. 88-004  
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 a spurious actuation of 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. Neither the health and safety of plant personnel nor the health and safety of the public was affected by this occurrence.

If you require any additional information, please so advise.

Sincerely,

*H E Morgan*

Enclosure: LER No. 88-004

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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