

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8712150164      DOC. DATE: 87/12/09      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 87-024-00: on 871109, fuel handling & containment purge  
 isolation spurious actuation during vital bus transfer.      W/8      ltr.

DISTRIBUTION CODE: IE22D      COPIES RECEIVED: LTR 1 ENCL 1      SIZE: 5pp.  
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

**NOTES:**

	RECIPIENT ID CODE/NAME	COPIES LTTR	ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	ENCL
	PD5 LA	1	1	PD5 PD	1	1
	ROOD, H	1	1			
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	AEOD/DOA	1	1	AEOD/DSP/NAS	1	1
	AEOD/DSP/ROAB	2	2	AEOD/DSP/TPAB	1	1
	ARM/DCTS/DAB	1	1	DEDRO	1	1
	NRR/DEST/ADS	1	0	NRR/DEST/CEB	1	1
	NRR/DEST/ELB	1	1	NRR/DEST/ICSB	1	1
	NRR/DEST/MEB	1	1	NRR/DEST/MTB	1	1
	NRR/DEST/PSB	1	1	NRR/DEST/RSB	1	1
	NRR/DEST/SGB	1	1	NRR/DLPQ/HFB	1	1
	NRR/DLPQ/QAB	1	1	NRR/DOEA/EAB	1	1
	NRR/DREP/RAB	1	1	NRR/DREP/RPB	2	2
	NRR/DRIS/SIB	1	1	NRR/PMAS/IILRB	1	1
	<u>REG FILE</u> 02	1	1	RES DEPY GI	1	1
	RES TELFORD, J	1	1	RES/DE/EIB	1	1
	RGN5 FILE 01	1	1			
EXTERNAL:	EG&G GROH, M	5	5	FORD BLDG HOY, A	1	1
	H ST LOBBY WARD	1	1	LPDR	1	1
	NRC PDR	1	1	NSIC HARRIS, J	1	1
	NSIC MAYS, G	1	1			

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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 3 6 1</b>	PAGE (3) <b>1 OF 0 4</b>
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TITLE (4)  
**FUEL HANDLING AND CONTAINMENT PURGE ISOLATION SPURIOUS ACTUATION DURING VITAL BUS TRANSFER**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)											
MONTH	DAY	YEAR	YEAR	SEQ. NUMBER	REV. NUMBER	MONTH	DAY	YEAR	FACILITY NAMES											
1	1	0 9	8	7	—	0	2	4	—	0	0	1	2	0	9	8	7			
									DOCKET NUMBER(S)											
									0 5 0 0 0 0											
									0 5 0 0 0 0											

OPERATING MODE (9) <b>5</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)										
POWER LEVEL (10) <b>0 0 0</b>	<input type="checkbox"/>	20.402(b)	<input type="checkbox"/>	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	<input type="checkbox"/>	73.71(b)			
	<input type="checkbox"/>	20.405(a)(1)(i)	<input type="checkbox"/>	50.36(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	<input type="checkbox"/>	73.71(c)			
	<input type="checkbox"/>	20.405(a)(1)(ii)	<input type="checkbox"/>	50.36(c)(2)	<input type="checkbox"/>	50.73(a)(2)(vii)	<input type="checkbox"/>	OTHER (Specify in Abstract below and in Text, NRC Form 366A)			
	<input type="checkbox"/>	20.405(a)(1)(iii)	<input type="checkbox"/>	50.73(a)(2)(i)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)					
	<input type="checkbox"/>	20.405(a)(1)(iv)	<input type="checkbox"/>	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)					
	<input type="checkbox"/>	20.405(a)(1)(v)	<input type="checkbox"/>	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)

NAME <b>H. E. MORGAN, STATION MANAGER</b>	TELEPHONE NUMBER
	AREA CODE: <b>7 1 4</b> NUMBER: <b>3 6 8 - 6 2 4 1</b>

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)

<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH: <b>0 6</b>	DAY: <b>0 1</b>	YEAR: <b>8 8</b>
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Abstract (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 1813 on 11/9/87, a spurious actuation of Train "A" of both the Fuel Handling Isolation System (FHIS) and the Containment Purge Isolation System (CPIS) occurred. Operators verified that radiation levels were normal and reset FHIS and CPIS at 1817. All Train "A" FHIS and CPIS components functioned as designed.

At the time of the actuations, the Train "A" 1E 120 VAC Bus, which provides power to Train "A" of both CPIS and FHIS, was being transferred from its normal power source to its alternate power source; however, this evolution could not be demonstrated to have caused the FHIS and CPIS actuations. The investigation to determine the root cause of this event is continuing. The investigation results will be reported in a supplement to this LER.

There is no safety significance to this event since all Train "A" FHIS and CPIS components functioned as designed.

*IE221/1*

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 87-024-00	PAGE 2 OF 4
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Plant: San Onofre Nuclear Generating Station (SONGS)  
Unit: 2  
Reactor Vendor: Combustion Engineering  
Event Date: 11/9/87  
Time: 1813

A. PLANT CONDITIONS AT THE TIME OF THE EVENT:

Mode: (5) Cold Shutdown

B. BACKGROUND INFORMATION:

The Fuel Handling Isolation System (FHIS) (EIIS System Code VG) consists of two independent "trains" of Fuel Handling Building (FHB) radiation monitors (EIIS Component Code RIT), associated dampers and recirculation filtration units. The Containment Purge Isolation System (CPIS) (EIIS System Code VA) is comprised of two independent trains of radiation monitors and purge isolation valves (EIIS Component Code ISV). Each train of either system is actuated by either a remote manual pushbutton or by one of the monitors sensing high radiation, instrument failure, or loss of power.

The 1E 120 VAC buses supply power to safety-related components and instruments. Each bus normally receives power from its associated 1E 125 VDC bus through an inverter. Alternately it can be powered from its associated 1E 480 VAC bus through a transformer. The 1E 120 VAC bus power is transferred between normal and alternate sources with a manual transfer switch, which is a "make-before-break" type of switch, thereby preventing, by design, any power interruption to the bus.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 1813 on 11/9/87, a spurious actuation of Train "A" of both the Fuel Handling Isolation System (FHIS) and the Containment Purge Isolation System (CPIS) occurred. Operators noted a spike in indicated radiation levels on the associated monitors, with indicated radiation levels immediately returning to normal. FHIS and CPIS Train "A" were reset at 1817. All Train "A" FHIS and CPIS components functioned as designed.

At the time of the actuations, the Train "A" 1E 120 VAC Bus, which provides power to Train "A" of both CPIS and FHIS, was being transferred from its normal power source to its alternate power source. The operator who performed the transfer operation reported difficulty in moving the transfer switch.

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

None

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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3. Sequence of Events:

TIME	ACTION
1813	FHIS and CPIS Train "A" actuations occurred while performing transfer of 1E 120 VAC bus "A".
1817	After verifying the actuations were spurious, FHIS and CPIS Train "A" were reset.

4. Method of Discovery:

Control Room indications and alarms alerted the operators of the FHIS and CPIS Train "A" actuations.

5. Personnel Actions and Analysis of Actions:

The operators responded properly to the FHIS and CPIS Train "A" actuations by verifying proper system operation and verifying that FHIS and CPIS radiation monitor instrument readings were normal prior to resetting FHIS and CPIS.

6. Safety System Responses:

All Train "A" CPIS and FHIS components functioned as designed.

D. CAUSE OF THE EVENT:

SCE has been unable to determine the cause of the CPIS and FHIS Train "A" actuations. The following evaluations have been conducted to date:

1. Valid Actuation

A valid actuation of FHIS and CPIS has been discounted since Train "B" of either system did not actuate, and the response of the radiation monitors (an instantaneous spike in indicated radiation levels) is indicative of a spurious signal.

2. Spurious Actuation

The investigation into the cause of the spurious actuation of the FHIS and CPIS Train "A" focused on the transfer of 1E 120 VAC Bus "A", which occurred concurrently with the actuations.

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An attempt was made to duplicate the conditions that may have caused the actuations. It was postulated that if the 1E 120 VAC bus normal and alternate source were significantly out of synchronization, the transfer operation could have caused a voltage perturbation sufficient to cause the FHIS/CPIS actuation. Transfers were performed with 1E 120 VAC Bus "A" inverter (normal source) and transformer (alternate source) synchronized, 9 degrees out of synchronization (the as-found condition), and 16 degrees out of synchronization (the worst case condition beyond which an interlock will prevent the transfer operation from occurring). The bus transfer operations performed in the test were smooth, with neither unusual alarms nor actuations occurring. Power was not interrupted to the bus during any of the transfer operations, and nothing was observed which would indicate that the inverter or transfer switch was responsible for the FHIS/CPIS actuation.

An investigation was made to identify any other activities which could have caused the actuation; no such activities could be identified.

E. CORRECTIVE ACTIONS:

SCE continues to investigate the cause of the Train "A" actuations of FHIS and CPIS. The investigation results will be reported in a supplement to this LER.

F. SAFETY SIGNIFICANCE OF THE EVENT:

There is no safety significance to this event as all FHIS and CPIS Train "A" components functioned as designed.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Not applicable

2. Previous LERs on Similar Events:

In LER 87-022 (Docket No. 50-361), a spurious FHIS Train A and B actuation occurred, apparently due to electrical noise. In that event, a spike was evident on one CPIS Train "A" radiation monitor, although a CPIS actuation did not occur because the CPIS Train "A" monitor was removed from service at the time. The investigations into the cause of this event are continuing.



**Southern California Edison Company**

SAN ONOFRE NUCLEAR GENERATING STATION

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H. E. MORGAN  
STATION MANAGER

December 9, 1987

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

Subject: Docket No. 50-361  
30-Day Report  
Licensee Event Report No. 87-024  
San Onofre Nuclear Generating Station, Unit 2

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 an actuation of the Fuel Handling Isolation System and the Containment Purge Isolation System. 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,

Enclosure: LER No. 87-024

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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