

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8712020272 DOC. DATE: 87/11/25 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 87-021-00: on 871026, spurious actuation of Train B fuel handling isolation sys occurred. Caused by deenergization of containment purge isolation sys alarm relay. Work plan revised to remove affected monitors from svc. W/871125 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 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/NEB	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/ILRB	1 1
	REG FILE 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		H ST LOBBY WARD	1 1
	LPDR	1 1		NRC PDR	1 1
	NSIC HARRIS, J	1 1		NSIC MAYS, G	1 1

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 4		
TITLE (4) SPURIOUS FUEL HANDLING ISOLATION SYSTEM TRAIN "B" ACTUATION DURING DESIGN CHANGE WORK																
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				DOCKET NUMBER(S)			
1 0	2 6	8 7	8 7	0 2 1	0 0	1 1	2 5	8 7					0 5 0 0 0			
OPERATING MODE (9) 5			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)													
POWER LEVEL (10) 0 0 0			20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 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 Abstract below and in Text, NRC Form 366A)				
			20.405(a)(1)(iii)			50.73(a)(2)(i)			50.73(a)(2)(viii)(A)							
			20.405(a)(1)(iv)			50.73(a)(2)(ii)			50.73(a)(2)(viii)(B)							
			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	MANUFACTURER	REPORTABLE TO NPDs		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDs						
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)

At 1014 on 10/26/87, a spurious actuation of Train "B" of the Fuel Handling Isolation System (FHIS) occurred. There was no indication of increased radiation levels in the Fuel Handling Building (FHB). After the FHB airborne activity levels were confirmed to be normal, the FHIS was reset and FHB ventilation returned to normal at 1345. All FHIS Train "B" components functioned as designed.

The spurious actuation occurred during installation of a design change in the Containment Purge Isolation System (CPIS) Train "B" monitor, which shares a cabinet with the FHIS Train "B" monitor. As previously reported in LER 87-010 (Docket No. 50-362), the CPIS and FHIS wiring is routed in common wire bundles. Deenergization of a CPIS alarm relay, necessary for the design change, is believed to have induced an actuation signal in the FHIS circuitry.

The cabinet housing the CPIS and FHIS will be modified to separate the wiring currently routed in common wire bundles.

There was no safety significance to this event as all FHIS Train "B" components operated in accordance with design.

8712020272 871125
PDR ADOCK 05000361
S PDR

IE 22
111

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 87-021-00	PAGE 2 OF 4
---	---------------------------	-------------------------	----------------

Plant: San Onofre Nuclear Generating Station (SONGS)
 Unit: 2
 Reactor Vendor: Combustion Engineering
 Event Date: 10/26/87
 Time: 1014

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 radiation monitors (2RT-7822 and 2RT-7823) (EIIS Component Code RIT), associated dampers and recirculation filtration units. Each train is actuated by either a remote manual push button or by one of the monitors sensing high radiation, instrument failure, or loss of power.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 1014 on 10/26/87, a spurious actuation of Train "B" of the Fuel Handling Isolation System (FHIS) occurred. There was no indication of increased radiation levels in the Fuel Handling Building (FHB). After the FHB airborne activity levels were confirmed to be normal, the FHIS was reset and FHB ventilation returned to normal at 1345. All FHIS Train "B" components functioned as designed.

At the time of the actuation, the Containment Purge Isolation System (CPIS) Train "B" monitor (EIIS System Code VA) was being modified in accordance with an approved Design Change Package (DCP). This monitor shares a cabinet with the FHIS Train "B" monitor. During the deenergization of a CPIS alarm relay, conducted in accordance with the DCP work plan, the FHIS actuation occurred.

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

None

3. Sequence of Events:

TIME	ACTION
1014	FHIS Train "B" actuation. DCP work ongoing in radiation monitoring cabinets.
1345	After verifying FHB airborne activity levels were normal, FHIS was reset and ventilation was returned to normal in the FHB.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION	DOCKET NUMBER	LER NUMBER	PAGE
UNIT 2	05000361	87-021-00	3 OF 4

4. Method of Discovery:

Control Room indications and alarms alerted the operators of the FHIS actuation.

5. Personnel Actions and Analysis of Actions:

The operators responded properly to the FHIS actuation by verifying proper system operation and ensuring FHB airborne activity levels were below the actuation setpoint prior to resetting FHIS and returning the FHB ventilation to normal.

6. Safety System Responses:

All Train "B" FHIS components functioned as designed.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

Deenergization of a CPIS alarm relay.

2. Root Cause:

FHIS and CPIS wires are routed in common wire bundles. Due to the close proximity of the wiring, it is believed that an actuation signal can be induced in the FHIS circuitry as a result of a sharp voltage transient in the CPIS wiring (which occurs when a CPIS relay is deenergized).

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

The DCP work plan has been revised to utilize a device to limit the rate of voltage change across the affected relays, thereby reducing the magnitude of the induced signals that could be produced in the other system.

The DCP work plan has also been revised to remove the affected monitors from service during subsequent work.

2. Planned Corrective Actions:

Further testing to verify the root cause of the event is planned. If additional deficiencies are identified as a result of this testing, a revision to this LER will be submitted to reflect this new information.

The cabinet housing the CPIS and FHIS will be modified to separate the wiring currently routed in common wire bundles.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 87-021-00	PAGE 4 OF 4
---	---------------------------	-------------------------	----------------

F. SAFETY SIGNIFICANCE OF THE EVENT:

There is no safety significance to this event as all FHIS Train "B" components operated in accordance with design.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Not Applicable

2. Previous LERs on Similar Events:

a. LER 87-010 (Docket No. 50-362)

Deenergization of a Unit 3 CPIS Train "B" alarm relay, identical in function to the relay referred to in this LER, is believed to have induced an actuation signal in the Unit 3 FHIS Train "B" circuitry. Since the FHIS monitor indicated a spike in radiation levels (which were verified to be spurious), the corrective action was to place the FHIS monitor in "Alarm Defeat", effectively removing the monitor from service, during the completion of DCP work for Unit 3.

The work plan for installing the same DCP on Unit 2 identified the possibility of a spurious FHIS actuation [due to an induced signal]. Since a signal caused in this manner is known to be an individualized type of event, dependent on the arrangement of the wires within the wire bundle, it was concluded that the probability of inducing a signal sufficient to cause an actuation was remote. Because of this and the fact that the redundant (Train "A") FHIS monitor had been removed from service, the Train "B" monitor was not placed in "Alarm Defeat".

In the event described in this (Unit 2) LER, no spike was indicated on the monitor. The induced signal in this event, therefore, directly affected the FHIS actuation relay, so placing the monitor in "Alarm Defeat" would not have precluded this actuation.

b. LER 87-003 (Docket No. 50-361)

A spurious actuation of FHIS Train "B" occurred when the CPIS Train "B" reset button was depressed, resetting the CPIS relays and inducing a FHIS actuation signal. The wiring associated with the CPIS reset button was rerouted so that it is no longer adjacent to the FHIS relay wiring.

Southern California Edison Company

SAN ONOFRE NUCLEAR GENERATING STATION

P. O. BOX 128

SAN CLEMENTE, CALIFORNIA 92672

H. E. MORGAN
STATION MANAGER

TELEPHONE
(714) 368-6241

November 25, 1987

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

Subject: Docket No. 50-361
30-Day Report
Licensee Event Report No. 87-021
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. 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. 87-021

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)

IE22
11