

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8712020237 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 87-022-00: on 871027, fuel handling isolation sys monitors
 2RT-7822 & 2RT-7823, Train A & B, respectively, spuriously
 actuated. Caused by electrical noise spikes. Investigation
 continuing. W/871125 ltr.

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 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

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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
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	NRR/DLPQ/QAB		1	1		NRR/DOEA/EAB		1	1
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	NRR/DRIS/SIB		1	1		NRR/PMAS/ILRB		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		H ST LOBBY WARD		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 4									
TITLE (4) FUEL HANDLING ISOLATION SYSTEM (FHIS) TRAIN 'A' AND 'B' SPURIOUS ACTUATION																							
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	7	8	7	0	2	2	0	0	1	1	2	5	8	7	0	5	0	0	0		
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)																					
5		20.402(b)				20.405(c)				<input checked="" type="checkbox"/> 50.73(a)(2)(iv)				73.71(b)									
POWER LEVEL (10)		0 0 0				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 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 NRPDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS													
X	V	G	P			D	2	4	5	NO													
SUPPLEMENTAL REPORT EXPECTED (14)												EXPECTED SUBMISSION DATE (15)		MONTH	DAY	YEAR							
<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)												NO		0	5	3	1	8	8				
Abstract (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																							
<p>At 1050 on October 27, 1987, with Unit 2 in Mode 5, Fuel Handling Isolation System (FHIS) monitors 2RT-7822 and 2RT-7823, Train 'A' and 'B', respectively, were spuriously actuated from an apparent noise spike. At approximately the same time, the Component Cooling Water monitor 2RT-7819, which has no control functions, and Containment Airborne monitor 2RT-7804, which had been removed from service, also alarmed. After verifying Fuel Handling Building radiation levels were below the actuation setpoint, the FHIS was reset/secured.</p> <p>Evident on each monitor's recorder was a large instantaneous rise and drop of recorded radiation levels, indicative of a noise spike. Investigation into the cause of the electrical noise, however, has yet to determine the source.</p> <p>During verification that all FHIS components functioned as designed, it was discovered that the sample pumps for both trains had tripped off. Investigation has not revealed any activity that would have caused the pumps to trip at some time between the time of their last surveillance and the FHIS actuation nor a reason for a trip during the actuation.</p> <p>These investigations are continuing and a supplemental Licensee Event Report will be submitted upon their completion.</p> <p>There was no safety significance to this event since all FHIS components operated in accordance with design.</p>																							

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Plant: San Onofre Nuclear Generating Station (SONGS)
Unit: 2
Reactor Vendor: Combustion Engineering
Event Date: 10-27-87
Time: 1050

A. PLANT CONDITIONS AT 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 monitor contains a particulate/iodine channel and a noble gas channel. When one channel of either monitor senses high activity, the remote manual push button is depressed, the monitor fails, or there is a loss of power, a FHIS actuation occurs which isolates normal ventilation to the Fuel Handling Building (FHB) and initiates recirculation.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 1050 on October 27, 1987, with Unit 2 in Mode 5, FHIS monitors 2RT-7822 and 2RT-7823, Train 'A' and 'B', respectively, were spuriously actuated from an apparent noise spike. At approximately the same time, the Component Cooling Water (CCW) (EIIS System Code CC) radiation monitor 2RT-7819, which has no control functions, and Containment Airborne monitor 2RT-7804 (EIIS System Code VA), which had been removed from service, also alarmed. After verifying FHB radiation levels were below the actuation setpoint, the FHIS was reset/secured.

Evident on each monitor's recorder was a large instantaneous rise and drop of recorded radiation levels, indicative of a noise spike.

An inspection of the communication/control cabinet (2L-103) containing instrumentation for all four of the monitors identified that meggering of cables within the cabinet was in progress at the time of the noise spike and subsequent FHIS actuation. At the time, this was believed to be the source of the noise spike and all work within the cabinet was stopped. The investigation into the cause of this actuation, however, continued.

During verification that all FHIS components functioned as designed, it was discovered that the low flow alarm lights on both FHIS Trains 'A' and 'B' were illuminated and that the FHIS sample pumps (EIIS System Code VG) (EIIS Component Code P) for both trains had tripped off. The pumps were subsequently restarted. During the shiftly surveillance performed approximately one hour prior to the actuation, the low flow alarm lights were not illuminated. The investigation to date has not revealed any activity that would have caused the pumps to trip at some time between the surveillance and the actuation nor a reason for them to trip during the actuation.

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The sample pumps are required to be operable for FHIS monitor operability. Technical Specification section 3.9.12 requires that if neither FHIS train is operable, all operations involving movement of fuel within the storage pool or operation of the fuel handling machine over the storage pool be discontinued. During the approximate one hour in which the status of the pumps was indeterminate, records indicate that no activities involving fuel movement or operation of the fuel handling machine were in progress. The investigation into the cause of the pumps tripping is continuing.

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

None.

3. Sequence of Events:

DATE	TIME	ACTION
10/27/87	1050	FHIS Train 'A' and 'B' actuated. 2RT-7804 and 2RT-7819 alarmed.
10/27/87	1050 (subsequent to)	Meggaring in 2L-103 cabinet stopped.
10/27/87	1218	FHB ventilation returned to normal alignment.

4. Method of Discovery:

Control Room indication of the FHIS actuation.

5. Personnel Actions and Analysis of Actions:

Operators responded properly to the FHIS actuation by verifying proper system operation (whereupon it was discovered that the FHIS sample pumps for both trains had tripped off) and ensuring airborne activities were below the actuation setpoint prior to resetting FHIS.

6. Safety System Responses:

All FHIS components functioned as designed.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

Electrical noise causing spikes in the FHIS actuation circuitry of monitor 2RT-7822 and monitor 2RT-7823.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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2. Root Cause:

The investigation into the source of the electrical noise had initially focused on the meggering being performed in the 2L-103 cabinet as the most probable cause. Performance of testing to duplicate the meggering and its associated activities (i.e., use of battery powered telephones), however, was unable to duplicate the spurious noise spikes.

All four of the monitors, as well as having a common communication/control cabinet, are located in the 45 ft. penetration area. Walkdowns of the area were performed to determine if welding activities, which are a potential source of noise on sensitive monitor circuits, were occurring at the time of the noise spike. No welding equipment was observed and there was no record of welding taking place in the area at that time.

A review and inspection of the 2L-103 cabinet internals was performed and no loose terminations, abnormalities or design deficiencies were identified.

The investigation into the cause of the tripped FHIS sample pumps has not identified the failure mechanism.

These investigations are continuing and a supplemental Licensee Event Report (LER) will be submitted upon their completion.

E. CORRECTIVE ACTIONS:

The investigations into the cause of the electrical noise and tripping of the sample pumps are continuing and a supplemental LER will be submitted upon their completion.

F. SAFETY SIGNIFICANCE OF THE EVENT:

The health and safety of the public and plant personnel were not affected by this occurrence since all FHIS components operated as designed.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Not applicable.

2. Previous LERs on Similar Events:

Spurious actuations of FHIS due to random electrical noise have previously occurred and were most recently reported in LER 87-021 (Docket No. 50-361). Corrective actions have progressively been implemented which have reduced the susceptibility of the FHIS monitors to random electrical noise.

Southern California Edison Company

SAN ONOFRE NUCLEAR GENERATING STATION

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H. E. MORGAN
STATION MANAGER

November 25, 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. 87-022
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. 87-022

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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