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 MORGAN,H.E. Southern California Edison Co.
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SUBJECT: LER 89-011-00:on 891017,fuel handling isolation sys
 actuations due to component failure.

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Southern California Edison Company

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STATION MANAGER

November 16, 1989

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

Subject: Docket No. 50-362
30-Day Report
Licensee Event Report No. 89-011
San Onofre Nuclear Generating Station, Unit 3

Pursuant to 10 CFR 50.73(d), this submittal provides the required 30-day written Licensee Event Report (LER) for occurrences involving spurious actuations of the Fuel Handling Isolation System (FHIS). Neither the health and safety of plant personnel or the public was affected by this occurrence.

If you require any additional information, please so advise.

Sincerely,

Enclosure: LER No. 89-011

cc: C. W. Caldwell (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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LICENSEE EVENT REPORT (LER)																									
Facility Name (1) SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3												Docket Number (2) 0 5 0 0 0 3 6 2				Page (3) 1 of 0 5									
Title (4) FUEL HANDLING ISOLATION SYSTEM (FHIS) ACTUATIONS DUE TO COMPONENT FAILURE																									
EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)															
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names		Docket Number(s)														
1	0	11	7	8	19	8	19	0	1	1	0	0	1	1	6	8	9	NONE							
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 ////////////////////			<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)													
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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																
B	V G	R J X	N 3 0 15	NO																					
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)																									

On October 17, 1989, at 0212 and 0256, the Fuel Handling Building Isolation System (FHIS) Train "B" actuated due to a spike in the particulate/iodine channel of monitor 3RT-7823. After determination that the initial FHIS actuation was spurious, FHIS Train "B" was reset at 0235. Monitor 3RT-7823 was returned to service and the Fuel Handling Building (FHB) ventilation system was returned to normal. At 0256, a second FHIS Train "B" actuation occurred, again as the result of a spike on the particulate/iodine channel. After determining that the FHIS actuation was spurious, the FHIS Train "B" monitor was bypassed and declared inoperable on October 17, 1989 at 0300. There was no safety significance to these actuations since radiation levels remained normal and all FHIS Train "B" components functioned as designed. The redundant FHIS Train "A" remained operable throughout the event.

The control module was removed to the Radiation Monitoring test shop where a simulated signal was introduced and the output recorded over an extended period of time. The module repeated the in-plant failure while being tested. Our root cause evaluation has attributed the actuations to an intermittent failure of a +24 volt alarm power supply.

The module was replaced and operability was established after satisfactory testing. The suspected intermittent failure of the +24 volt power supply will be confirmed by an independent laboratory. A supplemental report will be submitted if the laboratory analysis is able to identify additional root cause information pertinent to this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 3	DOCKET NUMBER 05000362	LER NUMBER 89-011-00	PAGE 2 OF 5
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Plant: San Onofre Nuclear Generating Station
Unit: Three
Reactor Vendor: Combustion Engineering
Event Date: 10-17-89
Times: 0212 and 0256

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 1, Power Operations at 100% reactor power

B. BACKGROUND INFORMATION:

The Fuel Handling Isolation System (FHIS) [VG] consists of two independent "trains" of radiation monitors (3RT-7822 for Train "A" and 3RT-7823 for Train "B") [RIT], associated dampers, alarms, recirculation air filtration units, chillers, and cooling water pumps. Each monitoring train consists of a particulate/iodine channel and a gas channel. Only one channel (i.e. detector, signal processor, power supply and channel actuation relay) is required to initiate a train actuation. Each train actuation relay is triggered by either a remote manual push-button or by one of the radiation monitor channel actuation relays in response to either high radiation, instrument failure, or loss of power. A FHIS actuation isolates normal ventilation to the Fuel Handling Building (FHB) and initiates recirculation.

C. DESCRIPTION OF THE EVENT:

1. Event:

On October 17, 1989, at 0212 and 0256, the Fuel Handling Building Isolation System (FHIS) Train "B" actuated due to a spike in the particulate/iodine channel of monitor 3RT-7823. After determination that the initial FHIS actuation was spurious, FHIS Train "B" was reset at 0235. Monitor 3RT-7823 was returned to service and the Fuel Handling Building (FHB) ventilation system was returned to normal. At 0256, a second FHIS Train "B" actuation occurred, again as the result of a spike in the particulate/iodine channel. After determining that the FHIS actuation was spurious, the FHIS Train "B" monitor was bypassed and declared inoperable on October 17, 1989 at 0300.

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

None

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3. Sequence of Events:

<u>TIME</u>	<u>ACTION</u>
0212	FHIS Train "B" actuated.
0235	FHIS Train "B" reset following verification of satisfactory component actuation.
0256	Second FHIS Train "B" actuation. Verified satisfactory component actuation, monitor placed in bypass and the FHB ventilation returned to normal status.

4. Method of Discovery:

Control room alarms and indications alerted the operators of the FHIS actuations.

5. Personnel Actions and Analysis of Actions:

The Operators (utility, licensed) responded to the first FHIS actuation by verifying proper actuation of FHIS Train "B" components, surveying work groups in the area, and requesting that Health Physics personnel survey the FHB. No definitive cause for the actuation was found. Subsequent to the initial spike, since the radiation monitor appeared to be operating correctly, the operators made an assumption that the actuation was due to a random noise spike. The radiation monitor was then reset and returned to service. The action to return the monitor to service was inappropriate because an adequate investigation was not performed, and Operations Management was not notified prior to returning the monitor to service without work having been performed.

The Operators responded to the second FHIS actuation by verifying proper actuation of FHIS Train "B" components. Again, a survey by Health Physics and a review of work activities in the area revealed no cause for the actuation. After this actuation, radiation monitor 3RT-7823 was properly bypassed to preclude further actuations, and the FHB HVAC was returned to normal.

6. Safety System Responses:

All FHIS Train "B" components operated in accordance with design.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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D. CAUSE OF THE EVENT:

1. Immediate Cause:

The immediate cause of the FHIS actuation was the activation of the high alarm setpoint due to a spike exceeding the setpoint for a short period of time and then returning back to the base line.

2. Root Cause:

The root cause of this event is attributed to an intermittent failure of a +24 volt alarm power supply. The control module was removed to the Radiation Monitoring test shop where a simulated signal was introduced and the output recorded over an extended period of time. While being tested in the Radiation Monitor Shop, several voltage spikes were noted. In one case, the +24 volt alarm power supply voltage dropped and remained low for two and a half hours before recovering to its initial +24 volt value.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

- a. The failed module was removed and replaced. The replacement module was tested satisfactorily and returned to service.
- b. Appropriate operators have received instruction that radiation monitors are not to be returned to service following unexplained Engineered Safety Features Actuation System (ESFAS) actuations until the performance of the monitor has been reviewed and appropriate corrective action has been taken.

2. Planned Corrective Actions:

- a. The power supply board has been sent to an outside laboratory for confirmation of failure and additional analysis. Following this analysis, a determination will be made if additional corrective action is warranted. A supplemental report will be submitted if the laboratory analysis is able to identify additional root cause information pertinent to this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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- b. Operating Procedure S023-3-2.22, "Engineered Safety Features Actuation System Operation," will be revised to include a requirement that equipment that has caused a spurious actuation be removed from service until the root cause has been determined and corrected or management approval has been received to return the equipment to service.

F. SAFETY SIGNIFICANCE OF THE EVENT:

There is no safety significance to this event since radiation levels in the Fuel Handling Building remained normal and all FHIS Train "B" components operated in accordance with design.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Radiation monitor 3RT-7823, as well as the circuit card containing the failed power supply, is manufactured by Nuclear Measurement Corporation (NMC). The failed component was a +24 volt alarm power supply, component number 247825.

2. Previous LERs for Similar Events:

LER 88-011, Docket 50-361, discussed a FHIS actuation due to a power supply failure. Circumstances surrounding this event were different and the corrective actions are not applicable.

3. Results of NPRDS Search:

Not applicable.