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 AUTH. NAME AUTHOR AFFILIATION
 MORGAN, H.E. Southern California Edison Co.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 89-017-00: on 890927, CPIS actuation on instrument failure
 due to inadequate administrative controls.

W/8 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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Southern California Edison Company

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STATION MANAGER

October 27, 1989

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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. 89-017
San Onofre Nuclear Generating Station, Unit 2

Pursuant to 10 CFR 50.73(d), this submittal provides the required 30-day written Licensee Event Report (LER) for an occurrence involving the spurious actuation of the Containment Purge Isolation System (CPIS). 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,

H. E. Morgan

Enclosure: LER No. 89-017

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 2										Docket Number (2) 0 5 0 0 0 3 6 1			Page (3) 1 of 0 5											
Title (4) CONTAINMENT PURGE ISOLATION SYSTEM (CPIS) ACTUATION ON INSTRUMENT FAILURE DUE TO INADEQUATE ADMINISTRATIVE CONTROLS																								
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)												
0	9	2	7	8	9	8	9	0	1	7	0	0	1	0	2	7	8	9	NONE					
OPERATING MODE (9) 6			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (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)			<input type="checkbox"/> 50.73(a)(2)(v)			73.71(c)												
			20.405(a)(1)(ii)			50.36(c)(2)			<input type="checkbox"/> 50.73(a)(2)(vii)			Other (Specify in Abstract below and in text)												
			20.405(a)(1)(iii)			50.73(a)(2)(i)			<input type="checkbox"/> 50.73(a)(2)(viii)(A)															
			20.405(a)(1)(iv)			50.73(a)(2)(ii)			<input type="checkbox"/> 50.73(a)(2)(viii)(B)															
20.405(a)(1)(v)			50.73(a)(2)(iii)			<input type="checkbox"/> 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															
E	V A	D E T	N 3 0 5	YES																				
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 1653 on 9/27/89, during refueling operation, Containment Purge Isolation System (CPIS) Train "B" actuated on an instrument failure signal from Containment Airborne Monitor 2RT-7807. At 1702, after determination that containment radiation levels were normal and that the CPIS had actuated on an instrument failure signal, the monitor was placed in bypass, CPIS Train "B" was reset, and containment ventilation was returned to normal. There was no safety significance to this event since radiation levels remained normal and all CPIS Train "B" components functioned as designed.

The instrument failure was caused by an intrusion of water into two of the radiation monitor's detection chambers which resulted in a high voltage breakdown of the preamplifier printed circuit assembly. The source of the water was from a temporary drain hose which was erroneously connected to the monitor's sample line inlet during preparation for containment penetration local leak rate testing (LLRT). The root cause of this event is inadequate administrative controls. The LLRT procedure does not provide instructions for the preparation of penetrations. Additionally, the work authorization failed to identify the need to remove 2RT-7807 from service prior to performing the work.

The water was drained, the monitor was dried, and the preamplifier assembly was replaced. Operability was established after the equipment was satisfactorily tested. A procedure will be developed to control the preparation of penetrations for LLRTs. This procedure will provide sufficient detail for connecting test equipment and ensure operability status is addressed. This event will be reviewed with the appropriate personnel.

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Plant: San Onofre Nuclear Generating Station
Unit: Two
Reactor Vendor: Combustion Engineering
Event Date: 09-27-89
Time: 1653

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 6, Refueling
RCS Temperature: 78 F

B. BACKGROUND INFORMATION:

The Containment Purge System [VA] consists of two independent trains of area radiation monitors (2RT-7856 and 2RT-7857, Train "A" and "B" respectively), and process radiation monitors (2RT-7804 and 2RT-7807, Train "A" and "B" respectively), supply and exhaust fan units [FAN] and valved pathways to supply filtered air to the Containment building and/or exhaust Containment atmosphere to the Containment Purge Stack. A Containment Purge Isolation System (CPIS) actuation stops the fan units and closes the purge valves [ISV] for the associated train. The CPIS can be actuated by a remote manual push-button or by either high radiation or instrument failure sensed by the associated area radiation monitors (RT-7856 and RT-7857) or process radiation monitors (RT-7804 and RT-7807).

A Work Authorization Record (WAR) is an SCE document that is generated prior to performing maintenance on a piece of equipment. The WAR specifies clearance boundaries for personnel and equipment safety and includes an evaluation of the impact of the work on plant systems and equipment.

Local Leak Rate Testing (LLRT) of containment penetrations is performed during refueling outages. Prior to performing a LLRT, it is first necessary to install temporary test connections and vent/drain hoses on penetration branch piping (typically valved out and capped). Cognizant engineering personnel, who perform the LLRTs, obtain support from Maintenance personnel and provide specific direction for LLRT set up of individual penetrations. A "blanket" WAR for all LLRT support work is issued, which authorizes Maintenance personnel to install temporary test connections. Per the blanket WAR, each penetration is to be evaluated and discussed in a tailboard meeting between Operations and Maintenance personnel. Along with engineering direction, the work group utilizes the associated penetration arrangement figure from the LLRT procedure as an aid for setting up the penetration. The LLRT procedure, which provides detailed instructions for performing LLRTs, is not specific as to the manner in which temporary connections are to be made.

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C. DESCRIPTION OF THE EVENT:

1. Event:

On September 27, 1989, at 1653, a Train "B" CPIS actuation was received due to the failure of radiation monitor 2RI-7807, Channel "A" (Iodine). Radiation levels inside containment were verified to be below the CPIS alarm setpoint prior to resetting CPIS and aligning of actuated components to standby. All CPIS Train "B" components functioned as required. At 1702, the failed monitor was bypassed and CPIS Train "B" was reset and alignment of actuated Train "B" components were returned to normal.

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

Not applicable.

3. Sequence of Events:

<u>TIME</u>	<u>ACTION</u>
1653	Received Train "B" CPIS actuation due to failure of radiation monitor 2RI-7807.
1702	Verified that all Unit 2 CPIS Train "B" components actuated in accordance with procedure and the failed monitor was bypassed and CPIS Train "B" reset.

4. Method of Discovery:

Control Room alarms and indications alerted the operators (utility, licensed) of the CPIS actuation.

5. Personnel Actions and Analysis of Actions:

Operators responded properly to the CPIS by: 1) verifying that all Unit 2 CPIS Train "B" components actuated in accordance with procedure; and 2) verifying the actuation was not in response to elevated radiation levels prior to resetting CPIS and returning the system lineup to normal.

6. Safety System Responses:

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

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D. CAUSE OF THE EVENT:

1. Immediate Cause:

The failure of the radiation monitor 2RT-7807 was caused by an intrusion of water into the monitor's Channel "A" (iodine) detection chambers which resulted in a high voltage breakdown of the preamplifier printed circuit assembly. An instrument failure of the monitor's Channel "C" (particulate) also occurred in the same manner.

2. Intermediate Cause:

This intermediate cause has two elements:

- a) Personnel, utilizing the penetration figure from the LLRT procedure to install LLRT test connections on the penetration for 2RT-7807, incorrectly installed a drain hose on the sample line inlet. The figure does not depict the manner in which test connections are to be made. The incorrect connection allowed the sample line, which is under a vacuum with the monitor in service, to provide a pathway for residual water in the hose to be drawn into the monitor.
- b) The operator who authorized this work failed to identify the need to remove 2RT-7807 from service during the tailboard with the work group before making such an authorization.

3. Root Cause:

The root cause of this event is inadequate administrative controls for performing LLRT preparations of penetrations. The need to remove the containment airborne process monitors from service prior to making the LLRT preparation was not included in either the WAR or the LLRT procedure. Until this event, it was thought that LLRT preparation work had no potential for compromising equipment operability (this premise is not true for the 4 penetrations associated with the CPIS airborne process monitors). As a result, administrative controls were inadequate in that they failed to ensure the work activities that were required to support LLRTs did not adversely affect CPIS monitor operability.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

- a. The water was drained, the monitor dried and the pre-amplifier assembly was replaced. Operability was established after the equipment was satisfactorily tested.

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- b. During the current Unit 2 Cycle V refueling outage, the use of a "blanket" WAR, to prepare penetrations for performance of the LLRT, has been discontinued. An individual WAR will be issued for each penetration which will include the requirements for preparation of the penetration for testing and restoration of the penetration following the LLRT.

2. Planned Corrective Actions:

- a. A procedure will be developed to control the preparation of penetrations for LLRTs. This procedure will provide sufficient detail for connecting test equipment and ensure operability status is addressed. Until this procedure is issued, an individual WAR will be issued for each penetration which will include the requirements for preparation of the penetration for testing and restoration of the penetration following the LLRT.
- b. This event will be reviewed with the appropriate personnel emphasizing the need for a thorough evaluation of operability during the tailboarding of LLRT work activities.

F. SAFETY SIGNIFICANCE OF THE EVENT:

There is no safety significance to this event since radiation levels in the containment remained normal and all CPIS Train "B" components operated in accordance with design. Additionally, Technical Specification requirements for CPIS operability were satisfied since CPIS Train "A" remained operable during the period in which CPIS Train "B" was affected.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

Monitor 2RT-7807 is supplied by Nuclear Measurement Corporation (NMC). The preamplifier, model #LA-74/85, is also supplied by NMC.

2. Previous LERs for Similar Events:

No prior LERs in which Local Leak Rate Testing resulted in an ESF actuation were identified.

3. Results of NPRDS Search:

Not Applicable.