

*Southern California Edison Company*

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VICE PRESIDENT  
NUCLEAR GENERATION

September 29, 1994

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

Subject: Docket No. 50-361  
Supplemental Report  
Licensee Event Report No. 94-004, Revision 1  
San Onofre Nuclear Generating Station, Unit 2

Reference: Letter, R. W. Krieger (Edison) to USNRC Document  
Control Desk, dated July 29, 1994

The referenced letter provided Licensee Event Report (LER) No. 94-004, reporting a violation of the Technical Specifications that occurred when Edison unknowingly exceeded the time limits allowed to complete the action requirements of Technical Specification 3.7.10, "Emergency Chilled Water System." In that LER, Edison indicated that a broader evaluation would be conducted to determine the cause(s) and implications of this event. The enclosed supplemental LER is based on that evaluation. Neither the health nor the safety of plant personnel or the public was affected by this occurrence.

Sincerely,



Enclosure: LER No. 94-004-01

cc: L. J. Callan, Regional Administrator, NRC Region IV  
A. B. Beach, Director, Division of Reactor Projects, NRC Region IV  
K. E. Perkins, Jr., Director, Walnut Creek Field Office, NRC Region IV  
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 2 & 3  
M. B. Fields, NRC Project Manager, San Onofre Units 2 and 3  
Institute of Nuclear Power Operations (INPO)

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LICENSEE EVENT REPORT (LER)																		
Facility Name (1)										Docket Number (2)				Page (3)				
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 2										0   5   0   0   0   3   6   1				1   of   0   4				
Title (4)																		
INOPERABLE EMERGENCY CHILLED WATER SYSTEM																		
EVENT DATE (5)				LER NUMBER (6)				REPORT DATE (7)				OTHER FACILITIES INVOLVED (8)						
Month	Day	Year	Year	///	Sequential	///	Revision	Month	Day	Year	Facility Names				Docket Number(s)			
				///	Number	///	Number				NONE							
0	6	1	9	9	4	9	4	0	0	1	0	9	2	9	9	4		
OPERATING MODE (9)				THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)														
POWER LEVEL (10)				20.402(b)				20.405(c)				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		
				20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)				Abstract below and		
				20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)				in text)		
20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)										
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LICENSEE CONTACT FOR THIS LER (12)																		
Name										TELEPHONE NUMBER								
R. W. Krieger, Vice President, Nuclear Generation										AREA CODE								
										7   1   4		3   6   8   -   6   2   5   5						
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																		
CAUSE	SYSTEM	COMPONENT	MANUFAC-	REPORTABLE	////////	CAUSE	SYSTEM	COMPONENT	MANUFAC-	REPORTABLE	////////							
			TURER	TO NPRDS	////////				TURER	TO NPRDS	////////							
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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)																		

There was minimal direct safety significance to this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 94-004-01	PAGE 2 of 4
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Plant: San Onofre Nuclear Generating Station, Unit 2  
 Reactor Vendor: Combustion Engineering  
 Event Date: June 19, 1994  
 Mode: Mode 1, Power Operations  
 Power: 98%

DESCRIPTION OF THE EVENT:

On June 19, 1994 at 1410, Edison removed HPSI pump [BQ,P] P017 from service for maintenance and declared the pump inoperable. The two other HPSI pumps, and thus both HPSI trains, remained operable. Maintenance was also planned for ECWS room cooler ME417 [KM,ACU] (the cooler for the room containing HPSI pump P017) and it was also declared inoperable.

When equipment control planners scheduled the work for ME417, they failed to recognize that Technical Specification (TS) 3.7.10, "Emergency Chilled Water System" would be applicable. TS 3.7.10 was applicable because ME417 also provides emergency room cooling for Train A low pressure safety injection (LPSI) pump [BP,P] and Train A containment spray (CS) pump [BE,P] as they are located in the same room. Therefore, when ME417 was removed from service on June 19, 1994, the plant conditions required complying with the provisions of TS 3.7.10 which was not done.

When one emergency chilled water system is inoperable, TS 3.7.10.a requires the inoperable system to be returned to service within 7 days or be in hot standby within the next 6 hours and cold shutdown within the following 30 hours. Additionally, TS 3.7.10.b requires that:

- 1) within 1 hour, verify that the normal HVAC system is providing cooling to vital power distribution rooms,
- 2) within 8 hours, verify the operability of the safe shutdown systems which do not depend on the inoperable cooler, and
- 3) within 24 hours, establish the operability of all required systems, subsystems, trains, components and devices that depend on the remaining operable emergency chilled water system.

On June 23, at 0730, when the control room supervisor [licensed, utility] identified that TS 3.7.10 should have been entered on June 19, 1994, the associated time limits of TS 3.7.10.b had been exceeded; Therefore, Edison is reporting this occurrence in accordance with 10CFR50.73(a)(2)(i).

Additionally, when room cooler ME417 was removed from service, one unexpected control room alarm was received associated with the Train A Containment Spray (CS) systems. The control room operators [licensed, utility] investigated this alarm by reviewing the alarm electrical diagrams which confirmed that the alarm should annunciate when the circuit breaker to Emergency Room Cooler ME417 was open. The control room operators did not sufficiently pursue the significance of the alarm annunciating when the room cooler circuit breaker was open and therefore missed an opportunity to prevent this event. Two additional operating crews as well as the associated shift technical advisors (STA's) [licensed utility] failed to adequately evaluate the control room alarms until the day shift control room supervisor did so on July 23, 1994.

REASON FOR THE EVENT:

This event occurred due to an incomplete and inadequate evaluation of the work planned for P017 and ME417 and was compounded by an incomplete evaluation of an alarming control room annunciator (cognitive error).

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Work Evaluation:

As stated above, when equipment control planners [non-licensed, utility] scheduled the work for ME417, they failed to recognize that Technical Specification (TS) 3.7.10 would be applicable for the work on HPSI pump P017 and ME417. Edison had planned concurrent maintenance on a HPSI pump and room cooler ME417 in August, 1992, and prepared a Work Authorization Record (WAR) which also did not note the applicability of TS 3.7.10 to that work. Because this earlier WAR did not identify that TS 3.7.10 was applicable, the equipment control evaluation, and supervisory review [non-licensed, utility], was incomplete. In that case, ME417 was subsequently deleted from the WAR (for non-TS related issues) and TS 3.7.10 was not violated.

Control room personnel [licensed, utility] missed an opportunity to prevent this event. Once the WAR was initially approved by equipment control, control room personnel reviewed the WAR but not in sufficient detail to identify that TS 3.7.10 applied

Control Room Alarm Response:

Mindset of control room personnel, operators [license, utility] and Shift Technical Advisors (STAs) [license, utility] was a factor contributing to the incorrect Train A Containment Spray alarm response. Personnel confirmed that the alarm should annunciate when ME417 was removed from service rather than identifying the purpose of the alarm. After identifying that the alarm was a result of "planned work," the alarm was not challenged and was not fully evaluated using the annunciator response procedures.

COMPLETED CORRECTIVE ACTIONS:

When it was identified that TS 3.7.10 was applicable, the verifications required by TS 3.7.10.b were immediately commenced and efforts initiated to return the room cooler to service. Edison completed the TS 3.7.10.b required verifications at 0840 on June 23, 1994 through completion of surveillance SO23-3-3.47. Edison returned cooler ME417 to service at 1115 on June 23, 1994. Coincidentally, operators had completed surveillance SO23-3-3.47 on June 20, 1994 at 2050 to support unrelated evolutions. Even though this was not performed with the intent of satisfying TS 3.7.10 and was approximately 31 hours after removing cooler ME417, it demonstrated that the equipment required by TS 3.7.10.b was, and had been, operable.

Edison has coached all individuals directly involved with the scheduling, review and approval of the work on ME417. All other equipment control personnel have received comprehensive training on this event by the supervisor directly involved with the error. Edison has reviewed this event with each operating crew and has provided additional crew training based on this event. This event has also been reviewed with all STA's.

In response to this and other events, a one-hour "standdown" meeting with each operating crew as well as with the Equipment Control and Operations Procedures Groups was conducted. In this meeting, the Operations Manager clarified management's expectations regarding attention to detail and the need to consider the broader implications of planned work.

PLANNED CORRECTIVE ACTIONS:

Operations Division will develop guidance which will identify elements associated with effective document review.

A priority 2 reading assignment will be issued discussing how thorough implementation of the Annunciator Response Good Operating Practice could have prevented this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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SAFETY SIGNIFICANCE OF THE EVENT:

There was minimal direct safety significance to this event. Although the verifications required by TS 3.7.10 were not completed within the times required by TS 3.7.10, the equipment required to be verified operable was, in fact, operable, as demonstrated by the surveillances completed on June 20, 1994 and June 23, 1994.

Additionally, cooler ME417 was returned to operable status within the 7 days allowed by TS 3.7.10.a. During the period that the Train A cooler ME417 was inoperable, the Train B emergency diesel generator (EDG) [EK] 2G003 was removed from service for 24 minutes to handbar the engine prior to a planned start. Prior to removing the EDG from service, an evaluation of Train A systems operability was performed by control room personnel.

Because the HFSI work authorization record (WAR) was improperly evaluated, Train A ECWS was believed to be operable at the time the EDG was declared inoperable for hand barring. Even though the EDG was removed from service with the Train A ECWS inoperable, the EDG was returned to service well before the end of the two hours allowed by TS 3.8.1.1 action c.1 (to verify that the components dependent on the Train A EDG were operable).

Although Train A ECWS was technically inoperable, all ECWS components other than ME417 would have operated normally if an actuation signal occurred and would have provided cooling to all other Train A components. Normal HVAC in the room remained functional throughout the event.

ADDITIONAL INFORMATION:

There have been no previous LERs for similar events in the past three years.