



Southern California Edison Company

SAN ONOFRE NUCLEAR GENERATING STATION

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August 12, 1992

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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. 92-004
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 an occurrence involving a manual actuation of the emergency feedwater system. Neither the health nor the 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. 92-004

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 4	
Title (4) MANUAL INITIATION OF EMERGENCY FEEDWATER ACTUATION SYSTEM IN RESPONSE TO TRIP OF MAIN FEEDWATER PUMP TURBINE														
EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)					
Month	Day	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names		Docket Number(s)				
07	20	92	0 0 4	0 0	08	12	92	NONE		0 5 0 0 0 1				
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			20.405(b)			20.405(c)			X 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)		
			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)(ix)								
LICENSEE CONTACT FOR THIS LER (12)														
Name R. W. Krieger, Station Manager										TELEPHONE NUMBER 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	MANUFACTURER	REPORTABLE TO NPDOS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPDOS					
X	S	L	F C V	G 0 8 4										
SUPPLEMENTAL REPORT EXPECTED (14)										Expected Submission Date (15)	Month	Day	Year	
Yes (If yes, complete EXPECTED SUBMISSION DATE) XX NO														
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)														

At 1024 on July 20, 1992, with Unit 3 at 100% power, main feedwater pump (MFP) turbine (MFPT) K006 tripped on low MFP bearing lube oil pressure. In accordance with the MFPT alarm response procedure, control room operators immediately initiated a rapid downpower to 70% power to avoid actuation of the reactor protection system on low steam generator level. At 1025, the operators manually initiated the emergency feedwater actuation system (EFAS) to maximize steam generator (SG) inventory during the transient. At 1030, reactor power was stabilized at 70%, SG levels were returned to normal, and EFAS was reset. There is no safety significance to this event since all EFAS components actuated as required by design.

The low MFP bearing lube oil pressure condition occurred during a test of the MFPT lube oil system. The emergency lube oil pump (ELOP) was started, in accordance with the test, and a change in pressure to the system occurred, as expected. The MFP bearing oil pressure regulating valve (PRV) is suspected to have over-compensated for the change in pressure, resulting in a decrease in MFP bearing oil pressure below the MFPT trip setpoint.

The oil PRV was adjusted to provide correct pressure to the MFP bearings. Testing performed following the adjustment verified proper response of the MFPT lube oil system during the start and operation of the ELOP. The oil PRV will be inspected during the next outage of sufficient duration in an attempt to verify the cause of the low MFP bearing lube oil pressure condition. Corrective actions will be implemented as appropriate based on the results of this inspection.

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Plant: San Onofre Nuclear Generating Station
Unit: Three
Reactor Vendor: Combustion Engineering
Event Date: 07-20-92
Time: 1025

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 1, Power Operation

B. BACKGROUND INFORMATION:

1. Main Feedwater Pumps (MFPs):

Two turbine-driven pumps [SJ, P, TRB] provide feedwater to the two steam generators / [SG] during power operation. Each MFP is capable of supplying sufficient feedwater to support 75% power operation.

2. MFP Turbine (MFPT) Lube Oil System [SL]:

Two AC lube oil pumps and one DC emergency lube oil pump (ELOP) are provided for each MFPT. The discharge piping of the pumps is combined in a header and is then routed through pressure regulating valves [PCV] which maintain pressure to the MFP and MFPT bearings. A low lube oil pressure condition sensed at either the MFP or MFPT bearings causes a trip of the MFPT.

3. Emergency Feedwater Actuation System (EFAS) [BA]:

EFAS is part of the Engineered Safety Feature Actuation System [JE]. Initiation of EFAS for both SGs results in the start of three auxiliary feedwater pumps, which then supply "emergency" feedwater to the SGs.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 1024 on July 20, 1992, with Unit 3 at 100% power, MFPT K006 tripped due to a low lube oil pressure condition at the associated MFP 3P062 bearings. In accordance with the MFPT trip alarm response procedure, control room operators (utility, licensed) immediately initiated a rapid downpower to 70% power to avoid actuation of the reactor protection system [JC] on low SG level. At 1025, also in accordance with the alarm response procedure, the operators manually initiated EFAS to maximize SG inventory during the transient. At 1030, reactor power was stabilized at 70%, SG levels were returned to normal, and EFAS was reset.

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

None.

3. Sequence of Events:

<u>TIME</u>	<u>ACTION</u>
1024	MFPT K006 tripped on low MFP bearing lube oil pressure. Operators initiated a rapid downpower.
1025	Operators actuated EFAS.
1030	Reactor power was stabilized at 70%, steam generator levels were returned to normal, and EFAS was reset.

4. Method of Discovery:

Control room alarms and indications alerted the operators to the trip of MFPT K006.

5. Personnel Actions and Analysis of Actions:

Operators properly reduced power and initiated EFAS in accordance with the alarm response procedure for a MFPT trip. Prompt operator response averted actuation of the reactor protection system.

6. Safety System Responses:

All EFAS components actuated as required by design.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

Operators actuated EFAS in response to the trip of MFPT K006, which occurred due to a low bearing lube oil pressure condition of associated MFP 3P062.

2. Root Cause:

Just prior to the MFPT trip, a test of the MFPT lube oil system had been performed which involved manually starting the emergency lube oil pump (ELOP). When the ELOP is started, the lube oil system pressure increases initially, and then the oil pressure regulating valves (PRVs) modulate in the closed direction to control pressure to the MFP and MFPT bearings.

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After the MFPT trip, MFP 3P062 bearing oil pressure was noted to be below normal (but slightly above the trip setpoint). The MFP bearing oil PRV 3PCV-4270 was found to require an adjustment to increase the lube oil pressure to normal. It is suspected that 3PCV-4270 over-compensated for the change in system pressure which occurred when the ELOP was started, resulting in a decrease in bearing oil pressure below the MFPT trip setpoint.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

PRV 3PCV-4270 was adjusted to provide correct pressure to the MFP bearings.

Following the adjustment made to 3PCV-4270, tests were performed on the MFPT lube oil system, including starting the ELOP several times. These tests verified proper MFPT lube oil system response to the start and operation of the ELOP.

Lube oil pressures of the other Unit 2 and Unit 3 MFPTs and MFPs were verified to be normal, indicating satisfactory performance of the other MFPT lube oil system PRVs.

2. Planned Corrective Actions:

PRV 3PCV-4270 will be inspected during the next outage of sufficient duration in an attempt to determine the cause for the low MFP bearing lube oil pressure condition. Corrective actions will be implemented as appropriate based on the results of this inspection.

F. SAFETY SIGNIFICANCE OF THE EVENT:

There is no safety significance to this event since all EFAS components actuated as required by design.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

The main feedwater pump turbine, including its lube oil system and associated PRVs, was supplied by General Electric Company, Mechanical Drive Turbine Department, part no. 153032. The MFP bearing oil PRV 3PCV-4270 is a constant differential pressure, variable flow regulating valve, part no. 134B142AB-1.

2. Previous LERs for Similar Events:

None.