

*Southern California Edison Company*

SAN ONOFRE NUCLEAR GENERATING STATION

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January 5, 1990

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STATION MANAGER

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

Subject: Docket No. 50-206  
Supplemental Report  
Licensee Event Report No. 89-018, Revision 1  
San Onofre Nuclear Generating Station, Unit 1

Reference: Letter, H. E. Morgan (SCE) to USNRC Document Control Desk, dated  
May 30, 1989.

The referenced letter provided Licensee Event Report (LER) No. 89-018, for an occurrence involving the Containment Spray System. The enclosed supplemental LER provides additional information concerning root cause and corrective action. 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,

*HE Morgan*

Enclosure: LER No. 89-018, Rev. 1

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 1										Docket Number (2) 0   5   0   0   0   2   0   6			Page (3) 1   of   0   5				
Title (4) VOLUNTARY ENTRY INTO TECHNICAL SPECIFICATION 3.0.3 IN ORDER TO PERFORM A SURVEILLANCE OF CONTAINMENT SPRAY SYSTEM PUMP DUE TO INADEQUATE TECHNICAL SPECIFICATIONS																	
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   4	2   7	8   9	8   9	---	0   1   8	---	0   1	0   1	0   5	9   0	NONE		0   5   0   0   0				
OPERATING MODE (9)		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)			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)			X 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 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	//////	CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS	//////
X	B   E	5   2	W   1   2   0	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)																	

On April 27, 1989, at 1139, while Unit 1 was in Hot Shutdown, the North Refueling Water Pump (RWP) (G27N) 480V circuit breaker (CB-1119) failed to remain closed when G27N was being started to perform a surveillance test of the Safety Injection and Containment Spray systems (CSS). RWP G27N was subsequently declared inoperable.

In order to initiate maintenance on G27N, Technical Specification (TS) 3.3.1.C. requires that the South RWP (G27S) be tested to demonstrate its availability. In order to perform the test without initiating containment spray, the pump's manual discharge isolation valve must be closed rendering the South train inoperable. Since there are no action statements which address the inoperability of both CSS trains, performance of the G27S surveillance test would constitute an entry into TS 3.0.3. The G27S discharge isolation valve was closed between 1226 and 1233 while the pump surveillance was being performed. The surveillance test verified that pump G27S continued to be operable.

Preliminary investigation determined that CB-1119 would not consistently remain closed. After CB-1119 was replaced with a spare CB, RWP G27N was satisfactorily tested and declared operable on April 28, 1989 at 2003. The inoperable breaker would not remain closed because the trip latch mechanism failed to achieve its fully reset position. This condition was caused by a long term buildup of dirt that restricted movement of components in the breaker operating mechanism. The appropriate circuit breaker maintenance procedure will be revised to require the inspection, cleaning and lubrication of the breaker operating mechanism during the performance of each breaker's routine maintenance. The inoperable breaker was disassembled, cleaned and a new operating mechanism was installed. The breaker was then tested successfully.

The cause of the TS 3.0.3 entry is the absence of appropriate action statements. A TS amendment application will be submitted which will revise TS 3.3.1 to preclude TS 3.0.3 entries for conditions similar to this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Plant: San Onofre Nuclear Generating Station  
Unit: One  
Reactor Vendor: Westinghouse  
Event Date: April 27, 1989  
Time: 1226

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 4, Hot Shutdown during restart from a refueling outage.  
RCS Temperature: 330 °F

B. BACKGROUND INFORMATION:

The Containment Spray System [BE] injects borated water into containment following a Loss Of Coolant Accident (LOCA) or a Main Steam Line Break (MSLB). Two redundant Refueling Water Pumps (RWP) (G27N and G27S) [BE][P] pump the borated water from the Refueling Water Storage Tank [BE][TK] to the containment spray nozzles [BE][NZL]. The RWPs start either via manual operator action or automatically upon receipt of a Containment Spray Actuation System (CSAS) signal.

The Containment Spray System is designed to limit the pressure rise inside containment to less than design pressure following a LOCA or MSLB. The system also serves to wash down radioactive particulate and airborne iodine fission products which may be released during a LOCA.

Technical Specification (TS) 3.3.1.A(2) and A(3), "Safety Injection and Containment Spray Systems," requires that both trains of the CSS be operable before the reactor coolant system temperature is increased above 200 °F (i.e., Modes 1 through 4). TS 3.3.1.B allows maintenance of either RWP for a period not to exceed 72 hours. TS 3.3.1.C requires the redundant component be tested to demonstrate its availability prior to initiating maintenance. This is achieved by performing the monthly flow test pursuant to TS 4.2.1.II.A, "Safety Injection and Containment Spray System Testing".

C. DESCRIPTION OF THE EVENT:

1. Event:

On April 27, 1989, at 1139, while Unit 1 was in Mode 4, the North Refueling Water Pump (RWP) (G27N) 480V circuit breaker (CB-1119) [52] failed to remain closed when G27N was being started to perform a surveillance test of the Safety Injection and Containment Spray Systems. RWP G27N was declared inoperable.

In order to initiate maintenance on G27N, TS 3.3.1.C. requires that the South RWP (G27S) be tested to demonstrate its availability. In order to perform the test without initiating containment spray and as required by the surveillance procedure, the pump's manual discharge isolation valve

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must be closed. With pump G27N inoperable and with the pump G27S discharge isolation valve closed, the CSS would be incapable of automatic operation as required by TS 3.3.1. Since there are no action statements which address inoperability of both CSS trains while performing the test required by TS 3.3.1.C, performance of the G27S surveillance test would constitute an entry into TS 3.0.3. Following management approval to briefly enter TS 3.0.3 in order to perform the surveillance test, the G27S discharge isolation valve was closed between 1226 and 1233 while the pump surveillance was being performed. The surveillance test verified that pump G27S continued to be operable.

CB-1119 was replaced with a spare circuit breaker. RWP G27N was satisfactorily tested and declared operable on April 28, 1989 at 2003.

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

None.

3. Sequence of Events:

<u>TIME</u>	<u>ACTION</u>
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4/27/89

1139	RWP G27N fails to achieve full speed when started. G27N was subsequently declared inoperable.
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1226	RWP G27S discharge valve closed. TS 3.0.3 entered.
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1227	Started RWP G27S to determine pump operability.
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1228	Stopped RWP G27S. Surveillance demonstrated pump to be operable.
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1233	RWP G27S discharge isolation valve opened. TS 3.0.3 exited.
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4/28/89

2003	RWP G27S was satisfactorily tested and declared operable with a spare breaker installed.
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4. Method of Discovery:

RWP G27N was briefly energized but did not achieve full operating speed during the performance of routine surveillance testing of the RWPs.

5. Personnel Actions and Analysis of Actions:

The brief entry into TS 3.0.3 was approved by Station Management in accordance with administrative guidance.

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6. Safety System Responses:

Not applicable.

D. CAUSE OF THE EVENT:

1. TS 3.0.3. Entry:

The TS 3.0.3 entry was a result of applying the requirements of TS 3.3.1. In the event of a failure of a component which is governed by TS 3.3.1, it is required by the specification to test the redundant component to demonstrate its availability. In the case of the RWPs, performance of the test on the operable component required that the CSS be re-aligned (i.e., G27S discharge isolation valve closed) such that, for a brief period of time it was incapable of fulfilling its safety function.

2. Circuit Breaker CB-1119:

a. Immediate Cause:

The breaker failed to close because the trip latch mechanism did not fully reset. This condition was caused by a long term buildup of dirt that restricted movement of pins, rollers, and linkages in the trip latch mechanism.

b. Root Cause:

The root cause of the breaker failure is inadequate preventative maintenance. The current preventative maintenance program does not require the extensive disassembly of this type of breaker, which would have revealed the dirt buildup in the breaker operating mechanism and resulted in cleaning of the breaker.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

- a. The inoperable circuit breaker, CB-1119, was replaced. Surveillance testing of RWP G27N determined that the pump and the spare breaker installed as CB-1119 were operable.
- b. The inoperable breaker was disassembled, cleaned and a new operating mechanism was installed. Testing determined the circuit breaker to be operable.
- c. Two breakers of the same type were inspected to determine if similar conditions existed in those breakers. Both breakers were found to be free of dirt in the breaker operating mechanisms.

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2. Planned Corrective Actions:

- a. A proposed change to TS 3.3.1 has been prepared and is currently being reviewed by SCE which would provide appropriate action statements for the CSS such that TS 3.0.3 would not be entered for events such as this. When this review is complete, the proposed TS change (as an amendment application) will be submitted to the NRC for review and approval.
- b. The Maintenance procedure will be revised to require the inspection, cleaning and lubrication of the breaker operating mechanism during the performance of each breaker's routine preventive maintenance, which is performed every other refueling in accordance with a repetitive maintenance order.

F. SAFETY SIGNIFICANCE OF THE EVENT:

The failure of CB-1119 is of no safety significance since: (1) There was a low probability of a plant condition which would require operation of the CSS during the seven minute period during which the CSS was unavailable, and (2) there was an equipment operator (utility nonlicensed) standing by to open the RWP G27S discharge isolation valve. With the plant conditions which existed at the time (Mode 4 - following refueling), the operator could have opened the valve in sufficient time to enable the CSS to satisfy its safety function.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

CB-1119 is a Westinghouse Model DB-25 circuit breaker.

2. Previous LERs for Similar Events:

There have been no prior similar events involving either TS 3.0.3 entries in order to perform TS required testing of redundant components or Westinghouse model DB-25 circuit breakers.

3. Results of NPRDS Search:

Review of the NPRDS information on Westinghouse model DB-25 circuit breakers revealed eight instances in which they exhibited failure symptoms similar to that reported here or had a potential to produce such symptoms.