

## 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 3	
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TITLE (4) INOPERABLE SNUBBERS - MAIN STEAM TO AUXILIARY FEEDWATER PUMP TURBINE															
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EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)					
MONTH	DAY	YEAR	YEAR	SEQ. NUMBER	REV. NUMBER	MONTH	DAY	YEAR	FACILITY NAMES			DOCKET NUMBER(S)		
01	02	86	86	001	00	01	02	03	SONGS, UNIT 3			0 5 0 0 0 3 6 2		
01	02	86	86	001	00	01	02	03				0 5 0 0 0 3 6 2		

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)													
1		20.402(b)				20.405(c)				50.73(a)(2)(iv)				73.71(b)	
POWER LEVEL (10)		20.405(a)(1)(i)				50.36(c)(1)				50.73(a)(2)(v)				73.71(c)	
1100		20.405(a)(1)(ii)				X 50.36(c)(2)				50.73(a)(2)(vii)				OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
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)										TELEPHONE NUMBER					
NAME H. E. MORGAN, STATION MANAGER										AREA CODE 714 368-6241					

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)											
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	
C	S/B	S/N/B	P1029	Y							

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 January 2, 1986, with Unit 2 at 100% power, a Pacific Scientific Mechanical Snubber was found disconnected and hanging free. The snubber was located on the Main Steam line to the Auxiliary Feedwater Pump Turbine (AFWPT). The snubber was manually stroked and found frozen due to transient damage. Pursuant to Technical Specification 4.7.6 additional potentially affected snubbers were manually stroked, identifying two additional failures.

On January 4, 1986, with Unit 3 in Hot Standby, the snubbers on the similar line in Unit 3 were inspected. As a result, seven degraded snubbers were identified.

All of the degraded snubbers on both units were replaced and engineering analyses were performed to determine their effect on the supported systems. The analysis determined that both systems remained capable of performing their safety functions under all operating conditions.

As corrective action, design studies of the system configuration have been initiated. In the interim, after every operation of the AFWPT of each unit, snubber surveillance has been increased by inspecting and manually stroking the snubbers, which are most susceptible to transient damage, to assure operability.

Since both systems remained functionally operable under all operating conditions, including a Design Basis Earthquake, there was no safety significance to these events.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)	
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

On January 2, 1986, with Unit 2 at 100% power, a Nuclear Regulatory Commission (NRC) resident inspector, during a random walkdown, identified a Pacific Scientific Mechanical Snubber (EIIS Component Code SNB) that was disconnected and was hanging free. The snubber was located on the Main Steam line (EIIS System Code SB) to the Auxiliary Feedwater Pump Turbine (AFWPT)(EIIS Component Code TRB)(EIIS System Code BA). This snubber was manually stroked and found frozen. A failure analysis was performed, which determined the cause to be due to hydraulic transient. Pursuant to Technical Specification 4.7.6 all additional snubbers which may have been subjected to this transient were manually stroked. A total of seventeen snubbers were stroked, of which a total of three were found degraded. Two failures were caused by transients and one was due to environmental degradation.

All three snubbers were replaced and an engineering analysis was performed to determine their effect on the supported system. During the Cycle 1 Refueling in November 1984, these same snubbers, along with others on this line, were found degraded. The engineering analysis performed for those failures bounds these recent failures. The results of the Cycle 1 analysis determined that the supported system remained capable of performing its safety function in all modes of operation and to remain functional during a Design Basis Earthquake (DBE).

The depinning of the snubber is believed to have been caused by a combination of effects. First, during the transients which caused the snubber to become frozen, the C-clip which holds the clevis pin in place probably fell off. Second, over time, normal vibration of the system may have caused the pin to work loose and disengage the snubber. The cause of this vibration is likely due to the flow of steam through the orifices (EIIS Component Code OR), which were added as part of the corrective action taken following the snubber failures found during the Cycle 1 Refueling 18-Month Surveillance Testing, reported in LER-84-079R1 (Docket No. 50-361). The orifices were added in place of the existing steam traps to allow a continued flow of steam through the Main Steam line to the AFWPT to help maintain temperature in the line and to provide a continuous drain, which would reduce the accumulation of condensation, reducing the chances of water hammer and turbine overspeed trips. These orifices are performing as expected, although, during heatup from Shutdown, they appear to be inadequate to handle the large amounts of water which result from this evolution.

On January 4, 1986, with Unit 3 in Hot Standby, the corresponding Unit 3 snubbers were inspected. The need for the Unit 3 inspection was based on the failures on Unit 2, the similarity of the Unit 2 and Unit 3 piping (although Unit 3 has more snubbers on this line than Unit 2), and since during the Unit 3 Cycle 1 Refueling Outage in September 1985, the same type of orifice system was installed. In addition, Unit 3 had gone through a heatup evolution and the AFWPT had been operated after the Cycle 1 18-Month snubber surveillance. A total of twenty five snubbers were manually stroked, which identified seven failures. It was determined that all seven failures were transient related and the seven snubbers were replaced. An engineering analysis was performed to determine their effect on the supported system. The results of this analysis determined that the affected system remained capable of performing its safety function in all modes of operations and would have remained functionally operable in a DBE.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

As corrective action for both units, additional design studies have been initiated. If any required design changes result from these studies they will be implemented during the next outage of sufficient duration for each unit. In the interim, in addition to the continuing program of system blowdown and draining, reported in LER 84-079R1 (Docket No. 50-361) for Unit 2 and in LER 85-017R1 (Docket No. 50-362) for Unit 3, after every operation of the AFWPT, snubber surveillance has been increased by inspecting and manually stroking the snubbers, which are the most susceptible to transient damage, to assure operability. These interim corrective actions will continue until the frequency of snubber failures decrease significantly.

Although there were snubber failures on both Units 2 and 3, no damage to any other supports, piping or the AFWPT's was observed. Analyses of these systems for both units have shown that the affected systems have been functionally operable under all operating conditions, including a DBE. Therefore, there was no safety significance to these events.



**Southern California Edison Company**

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February 3, 1986

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

Subject: Docket No. 50-361  
30-Day Report  
Licensee Event Report No. 86-001  
San Onofre Nuclear Generating Station, Units 2 and 3

Pursuant to 10 CFR 50.36(c)(2) and 10 CFR 50.73(a)(2)(i), this submittal provides the required 30-day written Licensee Event Report (LER) for two occurrences involving inoperable snubbers on the Main Steam Line to the Auxiliary Feedwater Pump Turbine. Since these events involved similar systems, causes and corrective actions on both Units 2 and 3, a single report is being filed in accordance with NUREG-1022. Neither the health and safety of plant personnel nor the health and safety of the public was affected by this event.

If you require any additional information, please so advise.

Sincerely,

*H. E. Morgan*

Enclosure: LER No. 86-001

cc: F. R. Huey (USNRC Senior Resident Inspector, Units 1, 2 and 3)

J. B. Martin (Regional Administrator, USNRC Region V)

Institute of Nuclear Power Operations (INPO)

*IE22  
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