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 FACIL:50-361 San Onofre Nuclear Station, Unit 2, Southern Californ 05000361
 AUTH.NAME AUTHOR AFFILIATION
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 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 88-037-00:on 891014,auxiliary feedwater valve inoperable
 for main steam isolation resulting in TS 3.0.3 entry.
 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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October 18, 1989

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

Subject: Docket No. 50-361
30-Day Report
Licensee Event Report No. 88-037
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 Auxiliary Feedwater System. Because this occurrence was initially identified in 1988, this LER is delinquent. 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. 88-037

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 6			
Title (4) AUXILIARY FEEDWATER VALVE INOPERABLE FOR MAIN STEAM ISOLATION RESULTING IN TECHNICAL SPECIFICATION 3.0.3 ENTRY																	
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)			
1	0	1	4	8	8	---	0 3 7	---	0 0	1 0	NONE			0 5 0 0 0			
										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) 1 0 0 <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <div style="border: 1px solid black; height: 20px; width: 100%;"></div>			<input type="checkbox"/> 20.402(b)		<input type="checkbox"/> 20.405(c)		<input type="checkbox"/> 50.73(a)(2)(iv)		<input type="checkbox"/> 73.71(b)								
			<input type="checkbox"/> 20.405(a)(1)(i)		<input type="checkbox"/> 50.36(c)(1)		<input type="checkbox"/> 50.73(a)(2)(v)		<input type="checkbox"/> 73.71(c)								
			<input type="checkbox"/> 20.405(a)(1)(ii)		<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> Other (Specify in								
			<input type="checkbox"/> 20.405(a)(1)(iii)		<input checked="" type="checkbox"/> 50.73(a)(2)(i)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)		Abstract below and in text)								
			<input type="checkbox"/> 20.405(a)(1)(iv)		<input type="checkbox"/> 50.73(a)(2)(ii)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)										
			<input type="checkbox"/> 20.405(a)(1)(v)		<input type="checkbox"/> 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	//////						
X	B A	L C V	L 2 0 0	YES	//////						//////						
SUPPLEMENTAL REPORT EXPECTED (14)																	
<input type="checkbox"/> Yes (If yes, complete EXPECTED SUBMISSION DATE)										<input checked="" type="checkbox"/> NO		Expected Submission Date (15)		Month	Day	Year	

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

At 0615 on 10/14/88, with Unit 2 at full power, following the completion of maintenance activities on the motor operator to Auxiliary Feedwater valve 2HV-4706, stroke testing of the valve was performed. Per Technical Specification (TS) 3.3.2, this valve has a Main Steam Isolation Signal (MSIS) response time requirement to close. While performing the stroke test, the valve would not close upon demand from the Control Room handswitch, and as a result, was not capable of automatic closure by a MSIS signal within the minimum response time required by TS 3.3.2. Since there are no TS action statements which address the condition where an AFW valve can not close on a MSIS signal, TS 3.0.3 was invoked. At approximately 0645, TS 3.0.3 was exited when operators manually closed the valve.

During maintenance work on the actuator to 2HV-4706, which involved the replacement of a motor heater and the application of lubrication to the motor bearings, a small piece of debris settled onto the "close" torque switch contacts, preventing the "close" motor windings from being energized. The actuator torque "close" contacts were cleaned, and 2HV-4706 was successfully stroke tested.

The root cause of the event is that existing TSs do not include a Limiting Condition for Operation and accompanying action statement specifically for these AFW components. It is therefore necessary to invoke TS 3.0.3. For corrective action, a TS amendment request will be submitted to provide appropriate action statements which will preclude similar entries into TS 3.0.3.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 88-037-00	PAGE 2 OF 6
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Plant: San Onofre Nuclear Generating Station
Unit: Two
Reactor Vendor: Combustion Engineering
Event Date: 10-14-88
Time: 0615

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 1, Power Operation with Reactor Power at 100%

B. BACKGROUND INFORMATION:

The Emergency Feedwater Actuation System (EFAS) [JA] is an Engineered Safety Feature Actuation System (ESFAS) [JE] designed to automatically initiate Auxiliary Feedwater (AFW) [BA] system flow to the Steam Generator (SG) [SG] when the SG level is low resulting from a loss of main feedwater. The Main Steam Isolation System (MSIS) [JA] is an ESFAS designed to isolate steam and feedwater lines to mitigate the consequences of a Main Steam Line Break (MSLB) or Main Feedwater Line Break (MFLB) accident by isolating the affected SG.

AFW flow to the SGs is controlled by two trains of motor-operated, normally closed valves (5 on each train) [LCV, ISV] on discharge piping from three AFW pumps [P]. These AFW valves have three safety functions associated with this design: 1) they open on EFAS; 2) they close on MSIS, and 3) they cycle open/closed to control level of the intact SG. An EFAS signal or a level control signal will override a MSIS signal to the set of valves providing flow to the intact SG.

Although Technical Specification (TS) 3.3.2, "Engineered Safety Feature Actuation System Instrumentation," addresses MSIS operability requirements, including minimum ESFAS response times for the valves, the TS does not provide an action statement for the situation in which a MSIS-related valve can not satisfy its response time requirement. In light of NRC guidance, this condition is considered to be an entry into TS 3.0.3. In contrast, although the EFAS function overrides an MSIS; TS 3.7.1.2, "Auxiliary Feedwater System", provides a 72-hour action statement which applies when an AFW control valve is unable to open.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 88-037-00	PAGE 3 OF 6
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C. DESCRIPTION OF THE EVENT:

1. Event:

At 0615 on 10/14/88, with Unit 2 at full power, following the completion of maintenance activities on motor operator to AFW valve 2HV-4706, stroke testing of 2HV-4706 was performed. Per TS 3.3.2, this valve has a MSIS response time requirement to close. While performing the stroke test, the valve would not close upon demand from the Control Room handswitch, and as a result, was not capable of automatic closure by a MSIS signal within the minimum response time required by TS 3.3.2. Since there are no TS action statements which address the condition where an AFW valve can not close on a MSIS signal, TS 3.0.3 was invoked. At approximately 0645, TS 3.0.3 was exited when operators manually closed the valve.

Since the entry into TS 3.0.3 was identified at the time of the event, this LER is delinquent (See Section G.4 for discussion on cause and corrective action).

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

None. AFW valves redundant to 2HV-4706 remained operable and capable of closure upon an MSIS actuation.

3. Sequence of Events:

TIME

ACTION

0615 Stroke test of 2HV-4706 initiated. Valve opened, but would not close. TS 3.0.3 entered.

0645 2HV-4706 manually closed. TS 3.0.3 exited.

4. Method of Discovery:

The inability for 2HV-4706 to close electrically from the Control Room was discovered while performing the post-maintenance stroke test.

5. Personnel Actions and Analysis of Actions:

Operators responded properly by manually closing 2HV-4706 within the time constraints of TS 3.0.3.

6. Safety System Responses:

Not applicable.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 88-037-00	PAGE 4 OF 6
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D. CAUSE OF THE EVENT:

1. Immediate Cause:

After the valve was opened to perform post-maintenance stroke testing, the valve was not available to close on MSIS and thus, was unable to meet the MSIS response time required by TS 3.3.2. Neither TS 3.3.2, nor any other TSs provide an Action Statement for this condition.

2. Root Cause:

SCE's root cause evaluation of the stroke test failure concluded that a small piece of debris had settled onto the "close" torque switch contacts during maintenance work on the actuator to 2HV-4706, which involved the replacement of a motor heater and the application of lubrication to the motor bearings. The small piece of debris prevented the "closed" motor windings from being energized. Inspection of the actuator internals did not reveal any signs of moisture intrusion or any significant buildup of debris. The actuator seals were found to be intact and undamaged. Due to the relatively small amount of debris found, and the absence of similar type failures, work practices were deemed to be adequate. The post-maintenance testing program is relied upon for detection of minor debris which can affect valve operation, as in this instance.

Stroke testing of valves following maintenance on the valves' motor operators will, on occasion, identify additional maintenance that may be required before the valves are able to meet their stroke time criteria. Since redundant valves are not affected by this occurrence, and since one train of Main Steam Isolation remained operational at all times, it would not normally result in an entry into TS 3.0.3. However, since TSs do not include a Limiting Condition for Operation and accompanying action statement specifically for these AFW components, it is necessary to invoke TS 3.0.3. This deficiency in the TSs was identified previously and action is being taken to correct it by submittal of a TS amendment. Until issuance of the amendment, it continues to be necessary to consider this condition as an entry into TS 3.0.3.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

The actuator torque "close" contacts were cleaned, and 2HV-4706 was successfully stroke tested.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 88-037-00	PAGE 5 OF 6
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2. Planned Corrective Actions:

As previously planned, a TS amendment request will be submitted with the intent of precluding entry into TS 3.0.3 for this condition. Similar corrective action is being taken for main feedwater [SJ] and main steam [SB] atmospheric dump valves which have a TS response time requirement (see also LERs 88-030 and 89-002 (Docket No. 50-361), and LER 89-004 (Docket No. 50-362)).

F. SAFETY SIGNIFICANCE OF THE EVENT:

There was no safety significance to this event since the redundant set of AFW valves remained fully operable and capable of closure upon a MSIS actuation. The EFAS response of the AFW system was operable during this condition.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

The actuator for 2HV-4706 is a Limitorque Model No. SMB-000.

2. Previous LERs for Similar Events:

LER 88-030 (Docket No. 50-361) reported an entry into TS 3.0.3 when a Plant Protection System (PPS) [JC] power supply produced a voltage spike causing four AFW valves to open in response to an EFAS, thereby preventing the valves from closing on a MSIS. Since there are no TS action statements which address the condition where an AFW valve can not close on a MSIS signal, TS 3.0.3 was invoked. The corrective action for this LER was that a TS amendment request (NPF-10/15-224) was submitted that precluded entry into TS 3.0.3 due to lack of an Action Statement for the auxiliary feedwater isolation and control valves, main feedwater isolation and backup valves, steam generator sample and blow down valves. The NRC has subsequently denied this TS amendment request. As previously planned, a revised TS amendment request will be resubmitted. Until such time as this revised TS amendment is resubmitted and approved, it continues to be necessary to consider this condition an entry into TS 3.0.3.

LER 89-011 (Docket No. 50-361) reported a voluntary entry into TS 3.0.3 during planned PPS power supply replacement due to three AFW valves receiving an EFAS signal, thereby resulting in the valves opening and being unable to close upon receiving a MSIS.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION UNIT 2	DOCKET NUMBER 05000361	LER NUMBER 88-037-00	PAGE 6 OF 6
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LER 88-030 (Docket No. 50-361) reported an entry into TS 3.0.3 when a PPS power supply produced a voltage spike causing four AFW valves to open in response to an EFAS, thereby preventing the valves from closing on a MSIS.

LERs 89-002 (Docket No. 50-361) and 89-004 (Docket No. 50-362) reported voluntary entries into TS 3.0.3 due to a lack of action statements for Main Feedwater [SJ] Block Valves and Atmospheric Dump [SB] Valves, respectively.

3. Results of NPRDS Search:

Not applicable.

4. LER Delinquency:

The failure to submit a LER for this occurrence was identified on September 18, 1989, during a Quality Assurance audit of SCE's LER reporting process. Compliance personnel responsible for the preparation of LERs were verbally notified by the Shift Technical Advisor (STA) of the TS 3.0.3 entry at the time of the event. However, due to oversight, tracking of the required LER was not established on the "NRC/Site Correspondence Schedule" contrary to the LER procedure. This is the first occurrence of such an oversight. As corrective action, appropriate Compliance personnel have been disciplined on the importance of establishing tracking of reportable conditions upon their identification. Additionally, to minimize the chances of similar oversights, the STAs have been instructed to provide a written follow-up to their verbal notifications to Compliance personnel of reportable events.