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KRIEGER,R.W. Southern California Edison Co.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-011-00:on 900722,auxiliary feedwater valve inoperable for main steam isolation resulting in TS 3.0.3 entry.

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Southern California Edison Company

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August 21, 1990

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

Subject: Docket No. 50-362
30-Day Report
Licensee Event Report No. 90-011
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 an Auxiliary Feedwater Valve being inoperable for main steam isolation which resulted in a voluntary entry into Technical Specification 3.0.3. Neither the health and safety of plant personnel nor the public was affected by this occurrence.

If you require any additional information, please so advise.

Sincerely,

R. W. Krieger

Enclosure: LER No. 90-011

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)

IE22
1/1

LICENSEE EVENT REPORT (LER)

Facility Name (1)	Docket Number (2)	Page (3)
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT 3	0 5 0 0 0 3 6 2	1 of 0 5

Title (4)

AUXILIARY FEEDWATER VALVE INOPERABLE FOR MAIN STEAM ISOLATION RESULTING IN A 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)
									NONE	0 5 0 0 0
0 7	2 2	9 0	9 0	0 1 1	0 0	0 8	2 1	9 0		0 5 0 0 0

OPERATING MODE (9)	2	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)							
POWER LEVEL (10)	0 0 2	___ 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	TELEPHONE NUMBER
R. W. Krieger, Station Manager	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 NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
B	B A	S O L	P 0 9 5	Yes					

SUPPLEMENTAL REPORT EXPECTED (14)

		Expected Submission Date (15)	Month	Day	Year
X	Yes (If yes, complete EXPECTED SUBMISSION DATE) ___ NO		0 2	1 5	9 1

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

At 0315 on 7/22/90, with Unit 3 in Mode 2, while filling the steam generators, Auxiliary Feedwater (AFW) bypass control valve 3HV-4763 failed to close upon demand. Per TS 3.3.2 this valve has a Main Steam Isolation Signal (MSIS) response time requirement to close. As the valve was not capable of automatic closure by a MSIS signal within the minimum response time required by TS 3.3.2, it was declared inoperable. 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 0325, TS 3.0.3 was exited when operators manually closed the valve.

The cause of this event was the inability of 3HV-4763 to meet its MSIS response time due to a failed solenoid valve. The root cause of the solenoid valve failure is unknown at this time and under investigation. The actuator has been sent to the manufacturer for an overhaul which will include replacement of the defective solenoid valve.

A contributing cause of this event is that existing TSs do not include a Limiting Condition for Operation and accompanying action statement applicable to this component. It is therefore necessary to invoke TS 3.0.3 when a response time requirement is not met. As additional corrective action, a TS amendment request will be submitted to provide an appropriate action statement which will preclude similar entries into TS 3.0.3.

Plant: San Onofre Nuclear Generating Station
Unit: Three
Reactor Vendor: Combustion Engineering
Event Date: 07-22-90
Time: 0315

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 2, Startup
RCS Temperature: 545 F

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 faulted steam and/or feedwater lines from an intact SG train in the event of a Main Steam Line Break (MSLB) or Main Feedwater Line Break (MFLB) accident.

AFW flow to the SGs is controlled by two trains of valves [ISV] on discharge piping from three AFW pumps [P]. AFW bypass control valve 3HV-4763, provides bypass flow around the main AFW discharge valve which is used for the delivery of AFW during accident conditions. The AFW bypass control valves are designed to pass AFW at a low rate and are typically utilized during plant startup and shutdown when feedwater demand is low. The valve can be remotely operated by a hand switch and a hand indicator controller located in the control room. The hand switch, in the modulate mode, allows the hand indicating controller to be used to modulate the bypass control valve from 15 to 300 gpm. The valves will automatically close upon receiving either a MSIS or an EFAS. The electrohydraulic operator to 3HV-4763 includes two twin directional solenoid valves that control the position of the actuator. The solenoid valves are used to direct the flow of hydraulic fluid to the pistons that stroke the stem open and closed and are internal to the actuator assembly. To open the valve, one solenoid valve directs high pressure hydraulic fluid to the bottom of the piston while the other valve bleeds the fluid on the top side of the piston to the lower pressure reservoir. To close the valve, the roles of the solenoid valves are reversed. A manual override feature of the actuator permits closure of the valve if it fails to function automatically or remotely.

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. This condition is considered 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.

C. DESCRIPTION OF THE EVENT:

1. Event:

At 0315 on 7/22/90, with Unit 3 in Mode 2, while filling the SGs, AFW valve 3HV-4763 failed to close upon demand. Per TS 3.3.2 this valve has a MSIS response time requirement to close. Since the valve was not capable of automatic closure by a MSIS signal within the minimum response time required by TS 3.3.2, it was declared inoperable. 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 0325, TS 3.0.3 was exited when operators manually closed the valve.

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

None

3. Sequence of Events:

TIME	ACTION
0315	3HV-4763 failed to meet MSIS response time requirement to close. TS 3.0.3 entered.
0325	3HV-4763 verified closed. TS 3.0.3 exited.

4. Method of Discovery:

While filling the SGs and transferring the flow alignment from the AFW bypass line to the normal AFW line, Operators (licensed, utility) observing the control room indication of the actual valve position, noted the inability for 3HV-4763 to close within the MSIS response time requirement.

5. Personnel Actions and Analysis of Actions:

Operators responded properly by promptly closing 3HV-4763 within the time constraints of TS 3.0.3.

6. Safety System Responses:

Not applicable.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

The valve was unable to meet the MSIS response time of TS 3.3.2 due to a failed solenoid valve which prevented 3HV-4763 from closing as required.

2. Root Cause:

The solenoid valve, which opens to direct fluid to the top of the piston (to close the valve), functioned intermittently. The root cause of the failure of the solenoid is unknown at this time, and a supplement to this LER will be provided upon completion of our investigation.

3. Contributing Cause:

TSs do not provide an Action Statement for 3HV-4763 when it is unable to meet the MSIS response time.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

a. Action was promptly taken to manually close 3HV-4763.

b. The actuator has been sent to the manufacturer for overhaul and root cause investigation of the solenoid failure.

2. Planned Corrective Actions:

a. The solenoid valve for 3HV-4763 will be replaced and 3HV-4763 will be stroke tested prior to returning the valve to an operable status.

b. As previously planned, a TS amendment request will be submitted with the intent of precluding entry into TS 3.0.3 for this condition (see also LERs 88-037, 88-030, 89-002 and 89-011, Docket No. 50-361).

F. SAFETY SIGNIFICANCE OF THE EVENT:

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

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

The component which failed was a Paul-Munroe 3-way, 2-position solenoid valve, part number PA89132-500.

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 were 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. As corrective action for this LER, 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 reviewed this request and did not agree with our justification for a proposed 72 hour action statement for the main feed isolation valves only and subsequently denied this TS amendment request. As previously planned, a revised TS amendment request addressing the NRC concern 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 88-037 (Docket No. 50-361) reported a voluntary entry into TS 3.0.3 when post maintenance testing on an AFW valve determined that the valve did not meet the MSIS minimum response time requirement.

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.

LERs 89-002 (Docket No. 50-361) reported a voluntary entry into TS 3.0.3 due to a lack of action statements for Main Feedwater [SJ] Block Valves.