LICENSEE EVENT REPORT (LER)

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

Title (4)
NON-CONSERVATIVE OVERPRESSURE MITIGATION TECHNICAL SPECIFICATION CRITERIA FOR OVERPRESSURE MITIGATION SYSTEM

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 4	0 4	8 9	8 9	--- 0 1 3	--- 0 0		0 5	0 4	8 9		0 5 0 0 0

OPERATING MODE (9)	5	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	TELEPHONE NUMBER AREA CODE
H. E. Morgan, Station Manager	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	//////
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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)

On April 4, 1989, during a review of the Overpressure Mitigation System (OMS) per NRC Information Notice 89-32, it was discovered that the Unit 1 Inservice Testing (IST) program for valves did not include an open response time requirement for the two Reactor Coolant System (RCS) Power Operated Relief Valves (PORV). This is contrary to the requirements of Technical Specification (TS) 4.7, "Inservice Inspection Requirements." Subsequent response time testing of the PORVs on April 4, 1989, revealed that PORV CV-546 required 2.27 seconds to open which exceeded the maximum allowable 2.0 second response time assumed in the OMS design calculation. On April 4, 1989, it was also determined that the PORV set point of </= 500 psig, specified by TS 3.20 (OMS) was non-conservative with respect to the low temperature overpressure limits established by the heatup and cooldown curves of TS 3.1.3, "Combined Heatup, Cooldown, and Pressure Limitations." These curves specify a maximum allowable RCS pressure of 470 psig when RCS temperature is </= 180°F.

These conditions did not have any safety consequences; an evaluation determined that due to overly conservative low temperature limits and calculation margins, RCS pressure would not exceed limits during an over pressurization transient.

The non-conservative PORV set point resulted from a failure to recognize the impact of one proposed TS change on another proposed TS change. Corrective actions include (1) inclusion of the PORVs in the valves IST program, and (2) review of the process of preparing TS changes. The PORVs were omitted from the IST program as the result of inadequate engineering and technical work similar to that described in SCE's 10/3/88 submittal to the NRC. The corrective actions addressed in that submittal are also applicable to the IST program deficiencies.

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Plant: San Onofre Nuclear Generating Station
Unit: One
Reactor Vendor: Westinghouse
Event Date: April 4, 1989

A. CONDITIONS AT TIME OF THE EVENT:

Mode: 5, Cold Shutdown following the completion of the Cycle X refueling.

B. BACKGROUND INFORMATION:

Overpressure Mitigation System

The Overpressure Mitigation System (OMS) is a portion of the Reactor Coolant System (RCS) (AB) which is provided to protect the RCS from over pressurization transients while the RCS is at low temperatures. Such over pressurization transients could result from rapid temperature increases, uncontrolled makeup to the RCS or loss of letdown from the RCS.

The OMS consists of RCS pressure sensors (PT), actuation logic (PC) and the two RCS Power Operated Relief Valves (PORV) (PCV) which are identified as CV-545 and CV-546.

Present Technical Specification Requirements

Technical Specification (TS) 3.20, "Overpressure Protection System," paragraph (A)(1), requires, in part, that two PORVs be operable with a setting of </= 500 psig whenever the Reactor Coolant System is </= 400 psig and the pressurizer is > 50% level. TS 3.1.3, "Combined Heatup, Cooldown, and Pressure Limitations," establish reactor coolant system pressure and temperature operating limits. Both TS 3.1.3 and TS 3.20 specify that the PORV lift set point for the OMS be re-evaluated whenever the heatup and cooldown curves are modified.

History of Technical Specification Requirements

A 522 psig PORV lift set point was established in 1977 by a design calculation performed during preparation of a new OMS TS. The lift set point for the PORVs was based, in part, on (1) a PORV opening time of </= 2.0 seconds and (2) the RCS heatup and cooldown curves. The OMS TS change, with a PORV lift set point of 522 psig, was submitted to the NRC by Amendment Application No. 71, dated August 29, 1977.

As the result of an RCS over pressurization event (see LER 83-005) the PORV lift set point was reduced to 500 psig to (1) increase the set point conservatism and (2) account for new heatup and cooldown curves which were applicable through 16 Effective Full Power Years (EFPY), as described in a letter to the NRC, dated May 8, 1984.

This submittal also requested that footnotes be added to TS 3.1.3 and the proposed TS 3.20 which would require that revision of the heatup and cooldown curves result in re-evaluation of the OMS PORV lift setpoint.

The heatup and cooldown curves through 16 EFPY were subsequently submitted to the NRC by Amendment Application No. 118, dated May 17, 1984.

On March 17, 1986, SCE submitted a revision to Amendment Application No. 118 which modified the previously submitted heatup and cooldown curves applicable through 16 EFPY. The heatup and cooldown curves were revised to reduce the maximum operating pressure at temperatures below 180°F in order to comply with the low temperature requirements of 10 CFR 50, Appendix G, applicable to the vessel closure flange region. These revised operating curves effectively reduced the maximum allowable RCS pressure to 470 psig when the RCS temperature is </= 180°F

On May 21, 1986, the NRC issued TS amendment 92 which revised the TS 3.1.3 heatup and cooldown curves to those proposed by the March 17, 1986 submittal (i.e., when the RCS temperature is less than 180°F, the RCS pressure is limited to </= 470 psig). The revised heatup and cooldown curves did not include the foot note described above which required re-evaluation of the PORV lift set point for OMS since the OMS TS had not yet been approved.

On April 5, 1988, the NRC provided SCE with a draft of the proposed OMS TS changes for review. The OMS changes were subsequently issued on May 23, 1988 as TS Amendment No. 102.

C. DESCRIPTION OF THE EVENT:

1. Event:

On April 4, 1989, the Unit 1 Inservice Testing (IST) program was reviewed to determine if the PORVs had been included in the program for the OMS function. The review determined that although the PORVs were included for functions requiring their closure, the IST program did not include opening response time as required by TS 4.7, "Inservice Inspection Requirements," for the OMS safety function.

Subsequent testing of the PORVs on April 4, 1989, revealed opening response times of 1.97 seconds and 2.27 seconds for CV-545 and CV-546, respectively. The CV-546 opening time of 2.27 seconds exceeds the maximum response time of 2.0 seconds assumed in the OMS design calculation.

On April 4, 1989, it was also determined that the OMS PORV lift set point of </= 500 psig, as specified by TS 3.20, was non-conservative with respect to the low temperature overpressure limits established by the heatup and cooldown curves of TS 3.1.3.

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

Not applicable.

3. Sequence of Events:

Not applicable.

4. Method of Discovery:

The conditions reported were discovered while reviewing the IST program to determine if the PORV opening response time for the OMS was included. This review was performed as the result of NRC Information Notice 89-32, "Surveillance Testing of Low-Temperature Overpressure-Protection Systems".

5. Personnel Actions and Analysis of Actions:

Not applicable.

6. Safety System Responses:

Not applicable.

D. CAUSE OF THE EVENT:

Root Causes:

a. The revision to the heatup and cooldown curves (TS 3.1.3) occurred in May 1986. However, the TS for the OMS (TS 3.20) was submitted in August 1977 but was not issued until May 1988. By letter dated April 5, 1988, the NRC sent SCE a preliminary copy of the TS pages affected by the OMS change for review prior to issuance. SCE's review did not identify the discrepancy between the OMS setpoint and the heatup and cooldown curves. TS 3.20 included a cautionary note to re-evaluate the OMS setpoint following any revision to the heatup and cooldown curves. Therefore, the revision to the heatup and cooldown curves pre-dated the issuance of the OMS TS. There was no mechanism to trigger the assessment of the impact of a change in one TS (3.1.3) on another TS (3.20) which had not yet been approved by the NRC.

b. The PORVs were omitted from the IST program for valves as the result of programmatic weaknesses in the understanding of ASME Code testing and TS requirements, and implementation of these criteria. The reasons for these weaknesses are similar to those which were previously addressed in SCE's October 3, 1988 submittal to the NRC regarding SCE's assessment of engineering and technical support for San Onofre.

E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

a. Immediate corrective action was taken to reduce the OMS setpoint to 420 psig.

b. The OMS design calculation has been revised to (1) increase the maximum allowable PORV opening time to 2.5 seconds and (2) reduce the PORV opening setpoint to 420 psig.

c. The requirements of the above two changes have been incorporated into applicable operations procedures and IST program procedures. These procedure modifications assure that the OMS functional requirements satisfy the intent of the present TS 3.20.

2. Planned Corrective Actions:

a. A TS amendment application will be submitted which would revise the heatup and cooldown curves and take advantage of the margins available as discussed below to provide additional operating margins.

b. The present program for preparation, review and approval of TS amendment applications will be reviewed and revised as necessary to ensure that the effect of a change in one TS on another TS, which had been proposed but had not yet been approved by the NRC, will be properly considered.

c. The IST program will be reviewed to ensure that the scope of the program is adequate. This review will be performed as a part of the actions requested in Generic Letter 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," dated April 3, 1989.

d. The corrective actions identified in SCE's October 3, 1988 submittal to the NRC concerning inadequate engineering and technical work are also applicable to the causes of the IST program deficiencies.

F. SAFETY SIGNIFICANCE OF THE EVENT:

A historical review of the closing time testing of the PORVS indicated a slow increase in their closing times since the TS requirements became effective in 1988. A review of the maintenance records indicated that during this same period, corrective maintenance had not been required which would affect the operating time of the valves. Since the closing times have been slowly increasing, SCE believes that the opening time of these valves have been similarly increasing. As a result, the PORV opening times determined on April 4, 1989 are believed to be the maximum opening time which could have existed during the time that the OMS TS requirements have been applicable.

During the review of the OMS design calculation assumptions following discovery of this condition, it was determined that the low temperature pressure limits contained in the present TS 3.1.3 heatup and cooldown curves were overly conservative. As a result of the overly conservative low temperature maximum RCS pressure, the non-conservative OMS setpoint described above would not substantially reduce the margin of safety during a low temperature overpressurization transient.

SCE therefore believes that this condition has no safety significance since, in the event of an over-pressurization transient, the RCS pressure would have not have exceeded acceptable limits.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

   Not applicable.

2. Previous LERs for Similar Events:

   None.

3. Results of NPRDS Search:

   Not applicable.

Southern California Edison Company

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May 4, 1989

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

Subject: Docket No. 50-206
30-Day Report
Licensee Event Report No. 89-013
San Onofre Nuclear Generating Station, Unit 1

Pursuant to 10 CFR 50.73(d), this submittal provides the required 30-day written Licensee Event Report (LER) for an occurrence involving the Overpressure Mitigation System. 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,

HEMorg

Enclosure: LER No. 89-013

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)

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