

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9008240098 DOC.DATE: 90/08/14 NOTARIZED: NO DOCKET #  
 FACIL:50-361 San Onofre Nuclear Station, Unit 2, Southern Californ 05000361  
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 RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 90-008-00:900715,main steam safety valve setpoints  
 outside Tech Spec limits.

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August 14, 1990

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

Subject: Docket No. 50-361  
30-Day Report  
Licensee Event Report No. 90-008  
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 Main Steam Safety Valves (MSSVs) in Units 2 and 3. Since this occurrence involves similar systems, cause, and corrective actions applicable to Units 2 and 3, a single report for Unit 2 is being submitted in accordance with NUREG-1022. 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. 90-008

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) MAIN STEAM SAFETY VALVES SET POINTS OUTSIDE TECHNICAL SPECIFICATION LIMITS																			
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	7	1	5	9	0	9	0	0	0	8	SONGS, UNIT 3		0   5   0   0   0   3   6   2						
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			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				
			20.405(a)(1)(iii)				50.73(a)(2)(i)				50.73(a)(2)(viii)(A)				Abstract below and				
			20.405(a)(1)(iv)				50.73(a)(2)(ii)				50.73(a)(2)(viii)(B)				in text)				
			20.405(a)(1)(v)				50.73(a)(2)(iii)				50.73(a)(2)(x)								
LICENSEE CONTACT FOR THIS LER (12)																			
Name R. W. Krieger, Station Manager										TELEPHONE NUMBER 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	MANUFAC- TURER	REPORTABLE TO NPRDS	//////	CAUSE	SYSTEM	COMPONENT	MANUFAC- TURER	REPORTABLE TO NPRDS	//////								
X	S   B	R   V	C   7   1   0	YES	//////						//////								
SUPPLEMENTAL REPORT EXPECTED (14)																			
Yes (If yes, complete EXPECTED SUBMISSION DATE)										XX NO		Expected Submission Date (15)		Month	Day	Year			
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																			

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

SAN ONOFRE NUCLEAR GENERATION STATION	DOCKET NUMBER	LER NUMBER	PAGE
UNIT 2	05000361	90-008-00	2 OF 6

Plant: San Onofre Nuclear Generating Station  
Units: 2 and 3  
Reactor Vendor: Combustion Engineering  
Event Date: 7-15-90

A. CONDITIONS AT TIME OF THE EVENT:

Unit 2: Mode 1, Power Operation  
Unit 3: Mode 3, Hot Standby

B. BACKGROUND INFORMATION:

The Main Steam Safety Valves (MSSVs) [SB,RV] provide overpressure protection for the secondary side of the Steam Generator (SG) [SG] and the main steam piping. Safety valve operability ensures that secondary system pressure is limited to not more than 110% of design pressure for the most severe transient.

Units 2 and 3 each have eighteen MSSVs. Each unit has nine safety valves on each of the two main steam lines. The valves were manufactured by the Crosby Valve and Gage Company. The Technical Specifications (TS) specify a lift set point for each of the valves with a 1% tolerance. The valve on each steam line with the lowest setting is set to relieve at design pressure of the SG (1100 psia). The remaining eight valves on each steam line have TS set point requirements of 1107, 1114, 1121, 1128, 1135, 1142, 1149, and 1155 psia. The highest pressure set point is 105% of the SG design pressure.

The MSSVs are lagged (insulated) in order to minimize heat loss in the MSSV steam header. The lagging consists of thermal insulation installed around the valve body and adjacent inlet piping. Lagging of the MSSVs increases the operating temperature. If the operating temperature of the valve is greater than the calibration temperature, the lift set point of the valve in service will be lower than that established during the calibration process.

TS 3.7.1.1 requires that all MSSVs be operable with lift settings within a specified pressure range per TS Table 3.7-1. If one or more of the valves are not operable, the Power Level-High reactor trip set point must be reduced per TS Table 3.7-2 within 4 hours; otherwise the unit must be shutdown. In addition, TSs require that MSSV periodic set point testing be performed in accordance with ASME Boiler and Pressure Vessel Code, Section XI, Article IWV-3510.

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C. DESCRIPTION OF THE EVENT:

1. Event:

At 1327 on July 15, 1990, with Unit 3 in Mode 3 following a refueling outage and Unit 2 in Mode 1 at 100% power operation, Unit 3 MSSV 3PSV8412 lifted for approximately two minutes at approximately 1025 psia. Since TS 3.7.1.1 requires the lift set point for 3PSV8412 to be 1114 psia with a 1% tolerance (minimum lift set point of 1103 psia), the valve was declared inoperable and the Power Level-High reactor trip set point reduced within 4 hours as required per TS Action Statement 3.7.1.1.a.

On July 16, 1990, testing of MSSV 3PSV8412 confirmed that its lift set point was approximately 80 psi below the TS minimum lift set point. 3PSV8412 was one of five Unit 3 MSSVs recently refurbished and recalibrated by Crosby at their offsite facility. The four additional Unit 3 MSSVs were then tested to confirm their lift set points. Each of the valves was found to lift between 20 and 30 psi below their respective TS minimum set point. Following each valve test, the lift set point was promptly adjusted to the required TS setting.

On July 17, 1990, as a result of the investigation into the cause of the low lift set points, it was discovered that the post-refurbishment lift set point calibration performed at Crosby was conducted with the valves in a configuration different than the valves' installed configuration. Specifically, the MSSV lift set points were established without lagging installed on the valves. Thus, the temperature profile of the valves during testing was different than that which would exist during normal (i.e., lagged) operation.

On July 17, 1990, a review of Unit 2 MSSVs identified five valves which also had post-refurbishment set point calibrations performed by Crosby without lagging installed. The five valves had been installed with lagging during the Unit 2 Cycle V refueling outage and had been considered operable since December 1989, when the unit first entered Mode 3 following refueling. Further review identified that three of these valves had their lagging removed on January 25, 1990, for visual verification of inlet stud material (actions unrelated to this event), and that these valves remained unlagged (i.e., operable) until present. At 1401 on July 17, 1990, the remaining two valves were declared inoperable and TS Action Statement 3.7.1.1.a was entered. Lagging on the valves was removed and at 1700 the valves were declared operable and the action statement exited.

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

None.

3. Sequence of Events:

As described in Section C.1 above.

4. Method of Discovery:

On July 15, 1990, MSSV 3PSV8412 was observed to lift for approximately two minutes at approximately 80 psi below the TS minimum lift set point.

5. Personnel Actions and Analysis of Actions:

Not applicable.

6. Safety System Responses:

Not applicable.

D. CAUSE OF THE EVENT:

1. Immediate Cause:

The lift setting calibration performed at Crosby was conducted with the valves in a configuration different than the valves' installed configuration (i.e., without lagging). As a result, the temperature profile of the valves differed from their normal operating condition. The higher temperature profiles of the valves in their installed positions resulted in the observed lower lift set points for the reasons described in Section B above.

2. Root Cause:

SCE did not inform Crosby that the MSSVs were to be calibrated with lagging installed on the valves. This occurred since SCE believed that Crosby normally calibrated safety valves with lagging installed on the valves. Therefore, although the Purchase Order (PO) for the MSSV refurbishment work specified requirements for the post-maintenance calibration pressures (i.e., the TS lift pressures) for each valve being refurbished and provided requirements for test set-up and test procedures, the PO never specified that the MSSVs were to be calibrated with lagging installed.

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E. CORRECTIVE ACTIONS:

1. Corrective Actions Taken:

- a. The lift set points for the five Unit 3 MSSVs which were set by Crosby without lagging installed on the valves have been properly recalibrated.
- b. As described in Section C.1 above, lagging was removed from the five Unit 2 MSSVs which were set in the unlagged condition.

2. Planned Corrective Actions:

- a. The five Unit 2 MSSVs requiring recalibration be recalibrated onsite in the lagged condition prior to restart from the present Unit 2 SG feedwater sparger repair outage.
- b. Appropriate procedures will be revised to require that following offsite lift set point calibration of the MSSVs, the valves will be recalibrated onsite in their normal operating configuration.
- c. The general Maintenance Order (MO) which is used to remove lagging from valves and piping at Units 2 and 3 will be revised to require an engineering review prior to removal of any lagging installed on the MSSVs. This will ensure that operability of the MSSVs is properly addressed prior to the removal of lagging.

F. SAFETY SIGNIFICANCE OF THE EVENT:

SCE has considered the impact on all accident scenarios that are affected by the MSSV low lift set points at Units 2 and 3. Since the operational result of lagging a safety valve calibrated in an unlagged state will cause it to lift earlier than its calibrated lift point, it is believed that the existing safety analysis remains bounding and there is no safety significance to this event. Calculations are in progress to verify this assessment. A revision to this LER will be issued should the calculation results not confirm this preliminary assessment.

G. ADDITIONAL INFORMATION:

1. Component Failure Information:

The MSSVs are Model No. 6R10 HA75FN manufactured by the Crosby Valve and Gage Company.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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2. Previous LERs for Similar Events:

LER 90-002 (Docket No. 50-362) describes a 2/23/90 reactor trip in which a Pressurizer Safety Valve (PSV) briefly opened below the TS minimum set point due to the PSV lift set point calibration being performed with the valve in a condition different than the actual operating condition. The LER was reviewed by appropriate cognizant personnel and the possibility of a connection between the PSV set point being incorrect and a similar problem with the MSSVs set points was considered. However, since it was our belief at the time that the MSSV lift set points had been calibrated in their actual operating condition (i.e., lagged), no further review was undertaken.