

LICENSEE EVENT REPORT (LER)

Facility Name (1) Zion, Unit 2										Docket Number (2) 0 5 0 0 0 3 0 4				Page (3) 1 of 0 4						
Title (4) Unit 2 Steam Generator Safeties Inoperable																				
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 3	1 2	8 8	8 9	---	0 0 2	---	0 0	0 4	1 1	8 8	Zion Unit 1				0 5 0 0 0 2 9 5					
OPERATING MODE (9)			THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (50.73(a)(2)(i)(B)) (Check one or more of the following) (11)																	
POWER LEVEL (10) 0 9 9			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		
			20.405(a)(1)(iii) X					50.73(a)(2)(i)					50.73(a)(2)(viii)(A)					in Abstract below		
			20.405(a)(1)(iv)					50.73(a)(2)(ii)					50.73(a)(2)(viii)(B)					and in Text)		
			20.405(a)(1)(v)					50.73(a)(2)(iii)					50.73(a)(2)(x)							
LICENSEE CONTACT FOR THIS LER (12)																				
Name Richard Harwood, Tech Staff Eng. Ext 315										TELEPHONE NUMBER AREA CODE 3 1 2 7 4 6 - 2 0 8 4										
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	///									
A	S B	R V	C 7 1 1	2	///						///									
SUPPLEMENTAL REPORT EXPECTED (14)																				
Yes (If yes, complete EXPECTED SUBMISSION DATE)										X NO		Expected Submission Date (15)		Month Day Year						
ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)																				

During a review of the maintenance records for the Main Steam Safety Valve (MSSV) overhauls, it was discovered that the as left setpoint for 3 MSSV's exceeded the 1% tolerance specified in the Technical Specifications Table 4.7-1. The affected MSSV's were declared inoperable on March 12, 1988, and the unit was ramped down from full power to approximately 65%. On March 19, 1988, the inoperable MSSV's were retested and their setpoints reset to within 1% of the setpoint stamped on the valve. The valves were declared operable and the unit was returned to full power operations. The cause of the event was the maintenance procedure, P/M003-5N, which states "Final set pressure tolerance shall be +/- 2%". This came from an interpretation of ASME Section XI. A review of the FSAR showed that for the most limiting accident that demands the MSSV operation, design basis MSSV flow capacity was maintained at all times. The procedure was changed to reflect Technical Specifications requirements.

DEZZ
/

B804150030 B80411
PDR ADOCK 05000304
S DCD

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)		
		Year	///	Sequential Number	///	Revision Number				
Zion, Unit 2	0 5 0 0 0 3 0 4	8 8	-	0 0 2	-	0 0	0 2	OF	0 4	

TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [xx]

A. PLANT CONDITIONS PRIOR TO EVENT:

MODE 1 - Power Operations RX Power 99% RCS [AB] Temperature/Pressure 558.5°F/ 2235 psig

B. DESCRIPTION OF EVENT:

During a review of the maintenance records of the Main Steam Safety Valve (MSSV) [SB] overhauls performed during the last Unit 2 Refueling, March 26, - August 1, 1987, it was discovered that the as left setpoint for 3 MSSV's exceeded the 1% tolerance specified in the Technical Specifications Table 4.7-1. The affected MSSV's were declared inoperable on March 12, 1988, and the unit was ramped down to approximately 65%. The Power Range Neutron High Flux setpoints were immediately adjusted to 74% in accordance to the power level outlined in the Technical Specifications Table 3.7-1. On March 19, 1988 the inoperable MSSV's were retested using an auxiliary lifting device and their setpoints reset to within 1% of the setpoint stamped on the valve. The valves were declared operable and the unit was returned to normal operations.

When the results of the pop tests were reviewed, it was found that the as found setpoint tolerance of the tested MSSV's was greater than 1%. All of the remaining valves were retested, and reset to a setpoint tolerance of 1%. Further investigation into the maintenance records show that approximately 105 MSSV's on Unit 1 and Unit 2 from 1978-1988 failed to meet the 1% setpoint tolerance in the as found testing. Most of the failures occurred when testing with nitrogen.

C. CAUSE OF EVENT:

The maintenance procedure used for testing and resetting the set pressure, P/M003-SN, states in the Acceptance Criteria:

"Final set pressure tolerance shall be +/- 2%."

This value comes from an an interpretation of ASME Section XI, Winter 1981. This section gives guidance for testing of safety valves for flow and setpoint. If all of the guidelines are followed then the tolerance of measured value is 2%. The tolerance is actually in regards to the flow testing, which is clarified in a later addendum to the test code. The statement that this gives a tolerance of 2% was interpreted as the desired setpoint tolerance. The 1% value stated in Technical Specifications is found only in the header of Table 4.7-1. The maintenance procedure is the only guidance to the mechanic when he sets the MSSV.

These valves in general experience some drifting. IE Information Notice 86-56 reports drifting of MSSV's nationwide. The ASME Code Section XI also has been changed to reflect that some drifting is acceptable. (Note: This revision of the code, 1987, is not part of Zion's ISI program, which refers to Winter, 1981).

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION												
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)				
		Year	///	Sequential Number	///	Revision Number						
Zion, Unit 2	0 5 0 0 0 3 0 4	8 8	-	0 0 2	-	0 0	0 3	OF	0 4			
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [xx]												

D. ANALYSIS OF EVENT:

The most limiting analyzed accident in the original FSAR is Loss of External Electrical Load, section 14.1.8. This accident looks at a loss of load without a reactor trip. The transient is assumed for a loss of load from 102% full power operation with:

- 1) rod control and pressurizer spray in automatic control, beginning of core life
- 2) rod control and pressurizer spray in automatic control, end of core life
- 3) rod control and pressurizer spray in manual control, beginning of core life
- 4) rod control and pressurizer spray in manual control, end of core life

For the four stated cases, no credit is taken for steam dumps, and in cases 3 and 4 no credit is taken for pressurizer spray.

The most demanding case for the MSSV's is loss of load at beginning of life with zero moderator temperature coefficient assuming full credit for pressurizer spray, pressurizer power operated relief valves, and automatic rod control insertion. The MSSV setpoint is reached at 16 seconds after the start of the transient and the MSSV's are required to relieve a peak flow of 56% of the flow at rated power at 18 seconds.

Using Figure 14.1.8-2 from the FSAR, the peak steam temperature reached is approximately 560 degrees F. This corresponds to a saturation pressure of about 1150 psig. The MSSV's are designed for full rated capacity at 3% above set pressure. The highest MSSV set pressure is 1100 psig and the highest as left setpoint out of tolerance was 1.5% over set pressure. At the 1150 psig, this MSSV will be at the 3% over pressure condition and would be able to pass designed rated flow.

Reviewing the as found data, only one of all of the failures had a pressure that with the 3% added, exceeds the 1150 psig, and this was exceeded by less than 1% for the one failure. This MSSV would be open in this accident condition, but would not be passing rated flow. The total rated MSSV flow is about 105% of the total flow at rated power. Since each MSSV's rated flow is less than 850000 lb/hr, which is about 6% of the total flow at rated power, the total available MSSV flow remains greater than 56%. Therefore the steam generator and the reactor protection was not degraded, and the health and safety of the public was not affected.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION												
FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)						Page (3)				
		Year	///	Sequential Number	///	Revision Number						
Zion, Unit 2	0 5 0 0 0 3 0 4	8 8	-	0 0 2	-	0 0	0 4	CF	0 4			
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [xx]												

E. CORRECTIVE ACTIONS:

The maintenance procedure was changed to indicate the proper setpoint tolerance, under procedure change number TM88-241. With the increase of as found failures when using nitrogen bench testing, the original method of testing (auxiliary lifting device) is being investigated for future use.

All remaining valves were retested and reset as necessary to the 1% setpoint tolerance. Unit 2 was tested on line using an auxiliary lifting device, while Unit 1 is in a refueling and the valves were sent to the manufacturer for testing on steam.

Also an investigation into a change to the Technical Specifications will be done. In the above stated safety analysis, a setpoint drift of 3% high will not affect the required 56% flow. Also a drift of 3% low is sufficiently above all normal operating conditions that there will be not spurious openings. The proposed change will consider testing the valves in accordance with ANSI/ASME OM-1987, Part 1, in which a setpoint drift of greater than 3% involves an expanded testing program. But in all cases the valves will be left with a setpoint tolerance of 1%.

F. PREVIOUS OCCURRENCES:

There are no previous reported occurrences, but the investigation into the maintenance records showed that many MSSV's were left with an as left setpoint tolerance greater than 1% (16 other cases). This was acceptable by the maintenance procedure in use. All of these valves have been retested and set to the proper setpoint tolerance.

G. COMPONENT FAILURE DATA:

None



Commonwealth Edison

Zion Generating Station
101 Shiloh Blvd.
Zion, Illinois 60099
Telephone 312/746-2084

April 11, 1988

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

Dear Sir:

The enclosed Licensee Event Report number 88-002-00, Docket No. 50-304/DPR-48 from Zion Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(i), which requires a 30 day written report when there has been an operation prohibited by the plant's Technical Specifications.

Very truly yours,

G. J. Pliml
Station Manager
Zion Generating Station

GJP/jlc

Enclosure: Licensee Event Report

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
CECo Distribution List

IE22
11