



**Commonwealth Edison**  
 Zion Generating Station  
 Shiloh Blvd. & Lake Michigan  
 Zion, Illinois 60099  
 Telephone 708 / 746-2084

*DOD*

December 27, 1990

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

Dear Sir:

The enclosed Licensee Event Report number 90-015-00, 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)(11)(B), which requires a 30 day written report when any event or condition occurs that results in the nuclear power plant being in a condition that is outside the design basis of the plant.

Very truly yours,

*T. P. Joyce*  
 T. P. Joyce  
 Station Manager  
 Zion Generating Station

TPJ/PG/dmg

Enclosure: Licensee Event Report

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

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Zion Unit 2						Docket Number (2) 0   5   0   0   0   3   0   4				Page (3) 1   of   0   3			
Title (4) Service Water Seal Injection Line not Adequately Supported													

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)		
11	27	90	90	0   1   15	0   0	11	27	90	N/A				

OPERATING MODE (9) 1		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (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 in Abstract below and in Text)				
	20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)						
	20.405(a)(1)(iv)		X 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 Paul Geddes, LER Coordinator								TELEPHONE NUMBER AREA CODE 7   0   8   7   4   6   -   12   0   8   4			
ext. 2487											

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	
				N							

SUPPLEMENTAL REPORT EXPECTED (14)								Expected Submission Date (15)			
X Yes (If yes, complete EXPECTED SUBMISSION DATE)								0   3   3   1   9   0			
NO											

In June of 1990, it was discovered that a portion of the Service Water (SW) System was not adequately supported. Specifically, it did not meet the seismic requirements as set forth in the Zion UFSAR. This was reviewed, and determined to be reportable under 10CFR50.73(a)(2)(ii)(B) on 11/27/90. It was not until 12/21/90 that it was recognized that this event was also reportable under 10CFR50.72(ENS).

The cause of this event was a preservice design implementation deficiency.

The SW line was reanalyzed using NEDO report #21985 'Functional Capability Criteria for Essential Mark II Piping'. The new calculated stresses were compared to the allowable stresses, and found to be acceptable. Therefore, there was no safety significance to this event.

Corrective actions include a modification to install an additional support for the SW line, a review of the piping required to be analyzed within the scope of IEB 79-14, and an improved method of ensuring events are screened for reportability in a timely manner.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev 2.0

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	9   0	-	0   1   5	-	0   0	0   2	OF	0   3	

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

A. CONDITION PRIOR TO EVENT

MODE 1 - Power RX Power 99% RCS [AB] Temperature/ Pressure 559 °F/ 2235 psig

B. DESCRIPTION OF EVENT

During the NRC Diagnostic Evaluation Team (DET) visit in June of 1990, it was discovered that a portion of the Service Water (SW) System was not adequately supported. Specifically, it did not meet the seismic requirements as set forth in the Zion UFSAR. The line of concern is a 3-inch line that supplies seal water to all Unit 2 SW pumps. This line taps into the SW supply header downstream of SW strainer 2B (line number 2SW198-3-X1-N). The UFSAR requires that this line meet the seismic stress evaluation requirements of ANSI B31.1. When these analysis techniques are applied to this line, at two points the allowable stress is exceeded by 18.6% and 39.3%. This was reviewed, and determined to be reportable under 10CFR50.73(a)(2)(ii)(B) on 11/27/90. While preparing the Deviation Report on 12/21/90, it was recognized that this condition was also 10CFR50.72 reportable, and the ENS notification for this condition was made at 1647.

C. APPARENT CAUSE OF EVENT

The cause of this event was a preservice design implementation deficiency. The UFSAR identifies the proper analysis techniques (ANSI B31.1) to apply. However, for an unknown reason, proper support of this SW line was never incorporated during plant construction. A contributing cause was that this line was not reanalyzed as required by IEB 79-14, 'Seismic Analyses for As-Built Safety-Related Piping Systems'. This was apparently an oversight during the original review for IEB 79-14.

The delay in determining reportability was due to a deficiency in the review process for design problems identified in the plant. The normal process for identifying reportable issues involves the Operating Department, where the practice for initiation, review and notification of events is well established. In this case, however, the condition was identified outside the Operating Department, and the appropriate reviews for reportability were not promptly made. This review deficiency also resulted in the ENS notification under 10 CFR 50.72 for this event being delayed until 1647 on 12/21/90.

D. SAFETY ANALYSIS OF EVENT

Analysis of this line using the ANSI B31.1 analysis technique showed that the allowable stresses in the pipe would be exceeded during a design basis earthquake. However, the SW line was reanalyzed using NEDO report #21985 'Functional Capability Criteria for Essential Mark II Piping'. The methodology of this report has been accepted by the NRC and allows the stress intensification factor for a fillet weld to be reduced for functional capability criteria (i.e., operability determination). The new calculated stresses were compared to the allowable stresses, and found to be acceptable. The SW line was evaluated as operable, and therefore there is no safety significance to this event.

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E. CORRECTIVE ACTIONS

A modification has been designed to install an additional support for the SW line which will satisfy the requirements of ANSI B31.1. It is expected to be installed by February 1, 1991. (295-123-90-DET 2.3.10-01)

After identification of this event, a review was performed of the piping required to be analyzed within the scope of IEB 79-14. No other lines were identified as not having been reanalyzed during the IEB 79-14 effort without technical justification.

A new procedure, ENC-QE-40.1 was instituted by the engineering department on 10/3/90. This procedure documents the review of potential design concerns by the engineering department for impact on plant operability, and requires formal notification of station management of conditions that affect plant or system operability.

Additionally, as part of the integrated root cause program, a method of reporting any abnormal event by any person in the station is being developed. These reports will be reviewed daily by the station root cause committee. This will help ensure that all conditions adverse to quality are screened on a timely basis for reportability. A supplemental report will be issued to detail the method for reporting abnormal events, and give an implementation schedule. (304-180-90-14601)

F. PREVIOUS EVENTS

LER 1-86-035 details a similar design implementation deficiency where control room damper reliefs were improperly installed. The corrective actions taken would not have prevented or detected this event. It is expected that the Zion Station design basis reconstitution effort will detect any other existing design implementation errors.

G. COMPONENT FAILURE DATA

None