

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

August 30, 1989

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

Dear Sir:

The enclosed Licensee Event Report revision number 84-04-02, Docket No. 50-304/DPR-48 from Zion Generating Station is being transmitted to you to update the station's actions and safety analysis.

Very truly yours,

J. a Ruch

T. P. Joyce Station Manager Zion Generating Station

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The original Westinghouse loss of feedwater transient analyses results show Zion Units 1 and 2 would provide inadequate auxiliary feedwater flow to the steam generators in the event of losing all feedwater. This shortfall is mainly due to throttling valves which are set to 105 gpm for each steam generator because of water hammer concerns. A standing order requiring operators to insure adequate flow during such an event was issued.

Zion subsequently received a new loss of feedwater analysis from Westinghouse. The analysis assumed an initial reactor power of 102% rather than 102% of 118% Engineered Safety Feature (ESF) power, and also assumed that 308 gpm is delivered to the steam generators. Enough margin existed in the analysis such that no additional actions were required to assure adequate cooling and the standing order was cancelled.

The methodology for the loss of feedwater transient analysis is the same as the original FSAR. The reduction in initial reactor power is less conservative but consistent with the NRC Standard Review Plan (NURES-0800).

In the previous submittal concerning the Zion Loss of Normal Feedwater Analysis (LONFW), an oversight was made concerning the Loss of all A.C. Power to the Station Auxiliaries transient. The Loss of all A.C. Power Analysis should have been included in those submittals. Beginning at the point of reactor trip, the two transients are identical, therefore the loss of A.C. Power transient is analyzed using the LONFW analysis.

No further corrective action is required at this time.

This LER revision has been reformatted to correspond to the current LER rule.

	LICENSEE EVENT REPORT (LER)	TEXT CONTINUATION			
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Zion, Unit 2	0 1 5 1 0 1 0 1 0 1 31 01	4 8 4 - 0 0 1 4 - 0 1 2 0 2 0 2 0 - 0			

A. CONDITION PRIOR TO EVENT

MODE 1 - Power Operation Rx Power 100% RCS [AB] Temperature/Pressure 559.4°F/2235 psig

B. DESCRIPTION OF EVENT

On January 20, 1984, Zion Station was informed by Weslinghouse that the existing auxiliary feedwater valve setting may not be sufficient to insure adequate reactor coolant system cooling following a loss of feedwater flow transient for either unit. Only Unit 2 was operating at the time.

C. APPARENT CAUSE OF EVENT

The existing FSAR analyses indicated that 410 gpm commencing 110 seconds after a trip on low-low steam generator level of 10% would insure adequate heat removal. Westinghouse updated the model to reflect the current practice of throttling the aux. feedwater lines to obtain 105 gpm to each steam generator at greater than or equal to 700 psig (420 gpm total). The throttling is a result of past water hammer problems. The throttling reduces the analyses' flow to only 340 gpm from the aux feedwater system to the steam generators at 1082 psig for the period following the trip, 70 gpm shy of the minimum required. The Westinghouse data also shows that if only 340 qpm were delivered to the steam generators, after 28 minutes the pressurizer will fill. The Westinghouse analysis took no credit for operator action.

D. SAFETY ANALISIS OF EVENT

The transient analyses model (Loftran) includes many conservative assumptions. Rather than opening the throttling valves and risking a water hammer event without further investigation, Zion initially has taken credit for operator action within 10 minutes of the event. Operators were instructed to raise aux. feedwater flow to 500 gpm if less than 420 gpm was delivered for the first 10 minutes.

Zion subsequently received a loss of feedwater analysis from Westinghouse. The analysis assumed an initial reactor power of 102%, rather than 102% of 118% ESF power, and that 308 gpm of coolant is delivered to the steam generators. Enough margin existed in the analysis such that by inputting an initial reactor power of 102% rather than 102% of the engineered safety feature power, no additional actions are required and the standing order could be cancelled.

The methodology for the loss of feedwater transient analysis is the same as the original FSAR. The reduction in initial reactor power is less conservative but consistent with the NRC Standard Review Plan (NUREG-0800).

E. CORRECTIVE ACTIONS

Until a new analysis could be performed, Zion took credit for operator action within 10 minutes of the event. Rather than opening the throttling valves and risking a water hammer event; operators were instructed, via a standing order, to raise aux feedwater flow to 500 gpm if less than 420 gpm was delivered for the first 10 minutes.

In the previous submittal concerning the Zion Loss of Normal Feedwater Analysis (LONFW), an oversight was made concerning the Loss of all A.C. Power to the Station Auxiliaries transient. The Loss of all A.C. Power Analysis should have been included in those submittals. Beginning at the point of reactor trip, the two transients are analyzed identically, therefore the loss of A.C. Power cransient is analyzed using the LONFW analysis.

	LICENSEE EVENT REPORT (LER) T	EXT CONTINUATION	
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No further corrective action \odot required at this time. Based on the new analysis, Zion Station's practice of throttling auxiliary feedwater flows to 105 gpm per steam generator at greater than or equal to 700 psig is within the safety analysis.

F. PREVIOUS EVENTS

NONE

G. COMPONENT FAILURE DATA

NONE

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