



Commonwealth Edison

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

October 30, 1991

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

Dear Sir:

The enclosed Licensee Event Report number 91-006-00, 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)(B), which requires a 30 day written report when any operation or condition occurs that is prohibited by the plant's Technical Specifications.

Very truly yours,

W.R. Kunch
for T. P. Joyce
Station Manager
Zion Generating Station

TPJ/dmg

Enclosure: Licensee Event Report

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

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ZDVRLER-366(6)

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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)
Unit 2 Pressurizer Cooldown Rate in Excess of 200°F/hr

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	9	3	0	9	1	9	1	0	0	6	0	0	1	0	3	0	9	1		

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	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
	<input checked="" type="checkbox"/> 20.405(a)(1)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

Name: Keith Rishel, Technical Staff System Engineer ext. 2917
 TELEPHONE NUMBER: AREA CODE 7 0 8 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	///
D				N	///						///

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) Month Day Year
 YES (If yes, complete EXPECTED SUBMISSION DATE) NO

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

ABSTRACT

On 9/30/91 at 0328 hours, the unit operators were performing General Operating Procedure (GOP)-4, Plant Shutdown and Cooldown. The unit operators were attempting to cool down the pressurizer while at the same time take the pressurizer to a water solid condition using charging flow greater than letdown flow to increase the Reactor Coolant System (RCS) inventory. The high rate of charging flow resulted in difficulty in controlling RCS pressure during this evolution. Operator verification subsequent to this event showed pressurizer liquid space temperature decreased from 421 F at 0328 to 214 F at 0428. This is in excess of Technical Specification 3.3.2.D cooldown limit of 200 F/hour.

This event was caused by inadequate procedural guidance. An evaluation determined that the pressurizer structural integrity was not compromised by the high cooldown rate. The health and safety of the public was not affected. Corrective actions include procedure changes to GOP-4, enhanced classroom and simulator training on pressurizer cooldown, and reviewing the event with the operating department.

SEE 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	1	-	0	0	6	-	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 5 - Cold Shutdown RX Power 0% RCS [AB] Temperature/ Pressure 150 °F/ 400 psig

B. DESCRIPTION OF EVENT

On 9/30/91 at 0328 hours, the unit operators were performing General Operating Procedure (GOP) -4, Plant Shutdown and Cooldown. The unit operators were attempting to cool down the pressurizer while at the same time take the pressurizer to a water solid condition. Throughout the evolution, the operators were attempting to control the cooldown rate within limits as well as maintain pressure below the Power Operated Relief Valve (PORV) lift setpoint. The pressurizer was being taken water solid using charging flow greater than letdown flow to increase Reactor Coolant System (RCS) [AB] inventory. Pressurizer pressure was also being increased due to the increase of RCS inventory. The operators compensated for the pressure increase by increasing pressurizer spray flow to quench the pressurizer steam bubble. The high rate of charging flow resulted in difficulty in controlling RCS pressure during this evolution. The operators recognized that the administrative cooldown limit of 100°F/hr was being approached so they balanced the increasing pressure and decreasing temperature with spray flow and charging flow. Operator verification following the event showed that pressurizer liquid space temperature decreased from 421°F at 0328 to 214°F at 0428. This cooldown rate was in excess of the Technical Specification 3.3.2.D cooldown limit of 200°F/hour.

C. APPARENT CAUSE OF EVENT

The evolution of pressurizer cooldown while taking the pressurizer to a water solid condition is infrequently performed on either the plant or the simulator.

The event was caused by inadequate procedural guidance. GOP-4 contains a list of precautions related to the evolutions in the procedure, including RCS temperature-pressure limits, RCS cooldown limits, and pressurizer cooldown limits. In addition, most of these precautions are repeated immediately before a step involving the specific evolution. Steps in GOP-4 require the unit operator to monitor and record RCS temperature and pressure to ensure temperature-pressure limits and RCS cooldown rate limits are satisfied. However, GOP-4 does not provide guidance for meeting the pressurizer cooldown rate limits, including guidance on the rate of charging, guidance on the operation of the pressurizer heaters, instructions for recording pressurizer temperature, or identification of the temperature instrument that should be used to monitor cooldown rate.

D. SAFETY ANALYSIS OF EVENT

An evaluation was performed by Westinghouse to determine the effect of the excess cooldown rate on the pressurizer integrity. This review determined that the pressurizer structural integrity was not compromised and the pressurizer usage factor was not exceeded by this transient. Based on this determination, neither the health and safety of the public nor the safety of the plant was jeopardized by this high cooldown rate.

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 1	-	0 0 6	-	0 0	0 3	OF	0 3	
TEXT Energy Industry Identification System (EIIS) codes are identified in the text as [XX]										

E. CORRECTIVE ACTIONS

GOP-4 will be changed to include a requirement to record pressurizer temperature in the Plant Shutdown/Cooldown Record and to include a CAUTION statement immediately prior to the step where RCS cooldown is initiated. (304-180-91-07201)

Additionally, further enhancements to GOP-4 will be evaluated and incorporated to aid the operator in controlling cooldown of the pressurizer. Such enhancements may include guidance on the rate of charging flow for taking the pressurizer solid, guidance on the operation of the pressurizer heaters during the evolution, and identification of the temperature instrument that should be used for monitoring and recording the pressurizer temperature. (304-180-91-07202)

GOP-1, Plant Heatup, has been evaluated for the reverse operation, i.e. drawing a bubble in the pressurizer and heating up. A procedure change to GOP-1 has been put into place to record pressurizer liquid space temperature every 15 minutes when drawing a bubble in the pressurizer and heating up.

Classroom and simulator operator training on the enhanced GOP-4 will be implemented. This training will provide the operators with experience on infrequently performed evolutions of pressurizer cooldown and taking the pressurizer water solid. (304-180-91-07203)

The event will be reviewed with the operating department during operator requalification current events training to increase operator awareness. (304-180-91-07204)

The computer driven video display system will be reviewed to determine if the pressurizer heatup/cooldown rate should be included as a display parameter. (304-180-91-7205)

F. PREVIOUS EVENTS

A search of the DVR/LER database titles was conducted using the keywords 'pressurizer', 'reactor coolant system', 'cooldown', and 'excess'. No similar events could be found.

G. COMPONENT FAILURE DATA

None