

NRC FORM 366 (5-92)	U.S. NUCLEAR REGULATORY COMMISSION	APPROVED BY OMB NO. 3150-0104 EXPIRES 5/31/95
<b>LICENSEE EVENT REPORT (LER)</b>		ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

<b>FACILITY NAME (1)</b> Dresden Nuclear Power Station, Unit 3	<b>DOCKET NUMBER (2)</b> 05000249	<b>PAGE (3)</b> 1 OF 5
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**TITLE (4)**  
Unexpected Cycling of the Low Pressure Coolant Injection Minimum Flow Valve During LPCI System Fill Due to Personnel Error

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 NAME	DOCKET NUMBER
08	23	96	96	-- 011 --	00	09	20	96	None	
									FACILITY NAME	DOCKET NUMBER

<b>OPERATING MODE (9)</b>	N	<b>THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10.CFR §: (Check one or more) (11)</b>								
<b>POWER LEVEL (10)</b>	000	20.2201(b)			20.2203(a)(3)(i)			50.73(a)(2)(iii)		73.71(b)
		20.2203(a)(1)			20.2203(a)(3)(ii)			50.73(a)(2)(iv)		73.71(c)
		20.2203(a)(2)(i)			20.2203(a)(4)			50.73(a)(2)(v)		OTHER
		20.2203(a)(2)(ii)			50.36(c)(1)			50.73(a)(2)(vii)		(Specify in Abstract below and in Text, NRC Form 366A)
		20.2203(a)(2)(iii)			50.36(c)(2)			50.73(a)(2)(viii)(A)		
		20.2203(a)(2)(iv)			50.73(a)(2)(i)			50.73(a)(2)(viii)(B)		
20.2203(a)(2)(v)			50.73(a)(2)(ii)			50.73(a)(2)(x)				

**LICENSEE CONTACT FOR THIS LER (12)**

<b>NAME</b>	<b>TELEPHONE NUMBER (Include Area Code)</b>
Ralph M. Fenili, Operations Staff	Ext. 2917 (815) 942-2920

**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>				<b>EXPECTED SUBMISSION DATE (15)</b>		
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO				

**ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)**

On August 23, 1996, during post maintenance activities to restore 3A Low Pressure Coolant Injection (LPCI) Heat Exchanger after corrective maintenance the LPCI 3A and 3B LPCI minimum flow valves unexpectedly cycled closed constituting an inadvertent Engineered Safety Feature (ESF) actuation. The system was returned to standby in accordance with plant procedures.

The valves received an actuation signal because operations personnel failed to establish adequate precautions to preclude cycling of the ESF component. This was due to a personnel error by the Unit Supervisor because he failed to effectively communicate work in progress between operations shift team members. Corrective actions include revising the Out of Service procedure to enhance communication for potential ESF actuations for return to service of the system after maintenance.

The safety significance of this event was determined to be minimal.

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**LICENSEE EVENT REPORT (LER)**  
TEXT CONTINUATION

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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

**PLANT AND SYSTEM IDENTIFICATION:**

General Electric - boiling water reactor - 2527 Mwt rated core thermal power.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX] and are obtained from IEEE Standard 805-1984, IEEE Recommendation Practice for System Identification in Nuclear Power Plants and Related Facilities.

**EVENT IDENTIFICATION:**

Unexpected cycling of the Low Pressure Coolant Injection minimum flow valve during LPCI system fill due to personnel error.

**A. PLANT CONDITIONS PRIOR TO EVENT:**

Unit: 3                                      Event Date: August 23, 1996                      Event Time: 1159  
 Reactor Mode: N                              Mode Name: Shutdown                              Power Level: 0%  
 Reactor Coolant System Pressure: 0 psig

3A Low Pressure Coolant Injection (LPCI) Heat exchanger was isolated in accordance with Dresden Administrative Procedure (DAP) 03-05, "Out-Of-Service Program" for corrective maintenance. The LPCI System Pumps A and B were operable and capable of injection utilizing the 3A LPCI Heat Exchanger bypass line.

**B. DESCRIPTION OF EVENT:**

This report is submitted in accordance with 10CFR73(a)(2)(iv) which requires the reporting of any event or condition which results in manual or automatic actuation of any Engineered Safety Feature (ESF). Initial notification of the event was performed pursuant to 10CFR72(b)(2)(ii) at 1600 (EDT) on August 23, 1996 through Emergency Notification System (ENS) number 30916.

On 8/23/96 at 1130, an Operations Field Supervisor (FS) [Licensed Senior Reactor Operator] and two Equipment Attendants (EA) [Non-Licensed Operators] participated in a pre-job briefing for the clearance of an out of service (OOS) on the 3A LPCI heat exchanger. The FS had previously completed the OOS preparer's checklist of DAP 03-05, and reviewed the OOS steps to be performed during the briefing.

The control room Unit Supervisor (US) [Licensed Senior Reactor Operator] reviewed the OOS for accuracy. Based on current plant status, the US acknowledged that the OOS clearance could be performed and signed off on the OOS preparer's checklist. Guidance for valve position restoration was given to the EAs by the US as per DAP 03-05. No precautions were provided to the EAs for the activity. The Unit NSO [Licensed Reactor Operator] was not informed of the activity. The EA's then proceeded to the Unit 3 Reactor Building to perform clearance of the LPCI heat exchanger OOS and restoration of the system to a normal valve lineup.

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At 1159, the Unit 3 Nuclear Station Operator (NSO) [Licensed Reactor Operator] received two alarms on the 903-3 control panel, "A/B LPCI Low Pressure" and "Core Spray Low Pressure" [BM] and observed 3A and 3B LPCI minimum flow valves, MOV 3-1501-13A/B, closing. Cycling of valves MOV 3-1501-13A & B constitute an inadvertent ESF actuation. The Unit 3 NSO announced the alarms to the Unit 3 US and proceeded to dispatch an EA to investigate the cause of the alarms. The US contacted the FS and confirmed that the alarms occurred concurrent with the 3A LPCI OOS clearance activity of opening the 3A LPCI Heat exchanger inlet valve. The NSO determined that the 3A Core Spray system pressure had decreased to 40 psig. The Operating Team entered a 4 hour LCO as required by Technical Specification (TS) Limiting Condition For Operation (LCO) 3.5.F for inoperability of the 3A and 3B LPCI systems and 3A Core Spray system. The Unit 3 NSO directed the EA's to close the heat exchanger inlet valve and wait for system pressures to stabilize.

At 1600 (EDT) on August 23, 1996, an ENS notification (Notification Number 30916) of the event was made pursuant to 10CFR72(b)(2)(ii).

About 1220, the Unit 3 EA used Dresden Operating Procedure (DOP) 1400-03, "ECCS Fill System" to perform venting of the 3A Core Spray system. Venting of the 3A Core Spray was completed and TS LCO 3.5.F was exited at 1430. 3A LPCI heat exchanger was returned to service at 1445. ECCS system venting was completed per DOP 1400-03 at 1739.

The unanticipated cycling of the two LPCI minimum flow valves was as a result of a rapid pressure decrease at the valves' flow transmitter during system valve alignment for filling of the 3A LPCI heat exchanger. The rapid change in pressure at the flow sensors simulated an increasing system flow condition, exceeding the flow setpoint for automatic closure of the minimum flow valves.

C. CAUSE OF EVENT:

The Primary cause of the event was cognitive personnel error (NRC Cause Code A) by the Operating Team, because the Unit Supervisor failed to effectively communicate work in progress between Team members. Interviews with the involved individuals found that some had sufficient knowledge to recognize the ESF potential for this activity. The Unit NSO was not informed of the pending OOS clearance of the 3A heat exchanger. If any involved individual had notified the Unit NSO of the intent to perform the OOS clearance, his knowledge was found to be sufficient to recognize the potential for auto closure of the LPCI minimum flow valves. Adequate precautions for the activity could have then been established thus preventing the ESF actuation.

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Two contributing causes were identified:

1. A defective procedure (NRC Cause Code D) was a contributing cause in that no procedural guidance was available to control the task of returning an ECCS system component to service especially from a drained condition. The station out of service procedure was used to realign the 3A LPCI Heat Exchanger from a drained condition and this method proved inadequate to prevent inadvertent cycling of ESF components. These inadequate precautions resulted in a rapid pressure decrease at the valves' flow transmitter during system valve alignment for filling of the 3A LPCI heat exchanger. The rapid change in pressure at the flow sensors simulated an increasing system flow condition, exceeding the flow setpoint for automatic closure of the minimum flow valves.
2. Training was also deficient (NRC Cause Code E) because not all Licensed Operators were aware of the potential valve closure during this task.

D. SAFETY ANALYSIS:

The function of valve MO3-1501-13A and -13B is to provide a minimum flow path for the LPCI pumps in order to prevent pump damage. The valves are repositioned based on system flow. At the time the valves went closed, the LPCI pumps were not operating. The affected redundant low pressure emergency cooling system (Core Spray) was affected and the appropriate Technical Specification LCO was entered. The valves were repositioned back to open position immediately. Momentary closing of the LPCI minimum flow valves presented minimal potential for damaging the pumps as damage would occur only after prolonged operation with no minimum flow protection. The minimum flow valves would have also automatically opened if necessary via LPCI initiation logic under accident conditions. Safety significance of this event is therefore considered minimal.

E. CORRECTIVE ACTIONS:

1. The Shift Manager of the Operations team will be responsible for creating and implementing an action plan to correct his teams communications problems. The action plan will be developed and actions pursued to completion. (2371809601101)
2. A Self-Assessment of the effectiveness of corrective action 2371809601101 will be performed. (2371809601102)
3. The two involved EA's and the Unit Supervisor who failed to make the Unit NSO aware of the work to be performed on the Operable LPCI system now acknowledge and understand their error. They have reviewed this LER and agree with the root cause.
4. The Out of Service Procedure, DAP 3-5 will be revised to incorporate appropriate precautionary actions for consideration when returning equipment to service that has the potential for causing spurious ESF actuations. (2371809601103)
5. This event has been added to Unit 2 and 3 Startup JIT Training.

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F. PREVIOUS OCCURRENCES:

<u>LER/Docket Number</u>	<u>Title</u>
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A historic search resulted in no reportable or non reportable events similar to this event's cause for the previous two year period.

G. COMPONENT FAILURE DATA:

None