



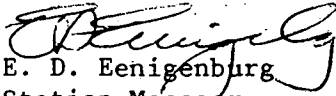
**Commonwealth Edison**  
Dresden Nuclear Power Station  
R.R. #1  
Morris, Illinois 60450  
Telephone 815/942-2920

September 11, 1991

EDE LTR #91-558

U.S. Nuclear Regulatory Commission  
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Licensee Event Report #91-026-0, Docket #050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(iv).

  
E. D. Fenigenburg  
Station Manager  
Dresden Nuclear Power Station

EDE/ade

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III  
File/NRC  
File/Numerical

(ZDVR/304)

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LICENSEE EVENT REPORT (LER)

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Facility Name (1) Dresden Nuclear Power Station, Unit 2	Docket Number (2) 0 15 10 10 10 12 13 17	Page (3) 1 of 0 4
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Title (4) Unanticipated Valve Closures During 125 VDC Ground Checking Due to Procedure Deficiency

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	8	1	1	0	2	0	9	0	N/A		
									N/A		

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)																				
POWER LEVEL (10) 0 8 4	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.71(b)	<input type="checkbox"/> 73.71(c)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)

LICENSEE CONTACT FOR THIS LER (12)

Name Ismael Rivera, Technical Staff System Engineer Ext. 2549	TELEPHONE NUMBER AREA CODE 8 1 5 9 4 2 -12 19 10
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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

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15)	Month	Day	Year
Yes (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO			

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

On August 13, 1991 at 1215 hours, with the reactor at 84% power, Low Pressure Coolant Injection (LPCI) System I minimum flow valve MO2-1501-13A closed during search for a ground on the 125 VDC Turbine Building Main Bus 2A-1. Although the circuit design causes this closure on de-energization of power circuit #22, Dresden Operating Procedure (DOP) 6900-06, 125 Volt DC Ground Detection - Unit 2, did not state this would occur. The valve was restored to its normal position and DOP 6900-06 was completed.

On August 15, 1991 at 1945 hours, with the reactor at 97% power, while continuing the ground checking activity on Turbine Building 125 VDC Reserve Bus 2B-1 per Work Request 02999, LPCI System II minimum flow valve MO2-1501-13B closed. This was expected; however, High Pressure Coolant Injection (HPCI) Turbine Stop Valve above seat drain valves A02-2301-64 and A02-2301-65 also auto closed on interruption of power from Reserve Bus 2B-1. Logic diagram review indicated that this should have occurred; however, DOP 6900-06 had not adequately identified this concern. The valves were promptly restored to their normal position and the ground search was continued. Temporary Procedure Changes were implemented adding caution statements to DOP 6900-06 for Unit 2 and DOP 6900-07 (similar procedure for Dresden Unit 3); permanent changes will be implemented. Safety significance was minimal because the valves were promptly repositioned, redundant low pressure core cooling systems were unaffected, and the HPCI valves involved moved to their design positions for initiation. There has not been a previous adverse trend concerning events of this type.

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

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXXX)

EVENT IDENTIFICATION:

Unanticipated Valve Closures During 125 VDC [EI] Ground Checking Due to Procedure Deficiency

A. CONDITIONS PRIOR TO EVENT:

Unit: 2    Event Date: August, 13, 1991                          Event Time: 1215 Hours  
 Reactor Mode: N    Mode Name: Run    Power Level: 84%  
 Reactor Coolant System (RCS) Pressure: 993.0 psig

B. DESCRIPTION OF EVENT:

On August 13, 1991 at 1215 hours, with the reactor at 84% power, while performing Dresden Operating Procedure (DOP) 6900-6, "125 Volt Ground Detection-Unit 2", the Low Pressure Coolant Injection (BO) (LPCI) System I minimum flow valve M02-1501-13A closed. The closure of the valve was a result of normally energized aux relay AX-120 being temporarily de-energized. DOP 6900-06 requires circuit #22 of 125 VDC Turbine Building Main Bus 2A-1 to be switched off and then on again thereby de-energizing the circuit. Upon de-energization of aux relay AX-120, the normally closed contact closed providing a close signal to valve M02-1501-13A. Although the circuit functioned as designed, the valve movement was not included in the procedure as an expected evolution. Valve M02-1501-13A was re-positioned open and the investigation into the ground problem continued. The de-energizing of aux-relay AX-120 simulated an increasing LPCI flow condition which closed the M02-1501-13A valve.

On August 15, 1991 at 1945 hours with the reactor at 97% power, while performing steps in accordance with Work Request (WR) 02999, involving ground detecting on Turbine Building 125 VDC Reserve Bus 2B-1, LPCI System II minimum flow valve M02-1501-13B closed as expected; however, in addition High Pressure Coolant Injection (HPCI) [BJ] Turbine Stop Valve above seat drain valves A02-2301-64 and A02-2301-65 also closed. The closure of M02-1501-13B was expected as a result of the event which occurred on August 13, 1991; the closure of A02-2301-64 and A02-2301-65 valves were not. An investigation of the HPCI logic diagrams indicated that this should have occurred; however, DOP 6900-06 had not adequately identified this as anticipated valve operations. Valves A02-2301-64 and A02-2301-65 are fail close valves. The momentary power interruption de-energized the solenoids and permitted the air pressure to bleed off closing the A02-2301-64 and A02-2301-65 valves. The valves were promptly restored to their normal position and the ground search was continued. Temporary Procedure Changes were implemented adding caution statements to DOP 6900-06 for Unit 2 and DOP 6900-07 (similar procedure for Dresden Unit 3); permanent changes will be implemented.

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

C. APPARENT CAUSE OF EVENT:

These events were considered an unplanned automatic Engineered Safety Feature (ESF) actuation, and therefore reportable under 10CFR50.73(a)(2)(iv). Emergency Notification System (ENS) calls were completed concerning each event. After further review of the electrical logic diagrams, it was concluded that the circuits reacted according to design; however, DOP 6900-6 was deficient in clearly identifying the anticipated actions resulting from momentarily repositioning the circuit breakers of the associated DC circuits. Review of the work instructions contained in WR 02999 indicates that the maintenance aspect of the ground checking activity during the second event was controlled by Dresden Maintenance Procedure (DMP) 8300-8, DC Ground Checking and Documentation on Safety-Related Systems. DMP 8300-8 contained a prerequisite that ground checks must first be completed by Operations and also clearly required coordination of all maintenance activities with the Operations Shift Supervisor. Investigation concluded that these requirements were complied with and that the WR 02999 package instructions were adequate in that control of breaker manipulation consequences was to be provided by DOP 6900-6. Therefore, this event was attributed to procedure deficiency within DOP 6900-6. There has not been a previous adverse trend concerning events of this type; however, it should be noted that recent enhancement to Station ESF actuation definition policy has resulted in a heightened level of awareness.

D. SAFETY ANALYSIS OF EVENT:

The function of valves M02-1501-13A and M02-1501-13B is to provide a minimum flow path for the LPCI pumps in order to prevent pump damage. The valves are repositioned based on the system flow. At the time the valves went closed, the pumps were not operating and redundant low pressure emergency cooling systems were unaffected. The valves were repositioned back to the 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. Safety significance of these events is therefore considered minimal.

The function of the HPCI valves involved (A02-2301-64, A02-2301-65) is to provide drainage for any condensation which forms in the HPCI turbine steam supply line. The valves were immediately repositioned. During emergency actuation, these valves close to prevent steam escaping to the HPCI room. During this event, the valves repositioned to the closed position which is the design position, therefore the safety significance of this event is also considered minimal.

E. CORRECTIVE ACTIONS:

The corrective action taken to prevent recurrence was to perform a review of the LPCI, HPCI and Core Spray logics to determine effects of circuit de-energization. Based on this review Temporary Procedure Changes (TPC) 91-177 and 91-178 to DOP 6900-06 for Unit 2 and DOP 6900-07 (similar procedure for Dresden Unit 3) were implemented. The TPC's will be in place until appropriate permanent changes are implemented by the Operations Staff. Although completion of the ground checking activity did not result in any further unplanned actuations, it is recognized that a thorough technical review of the ground checking procedures and associated circuitry is appropriate to prevent future events of this type under different conditions. The Technical Staff has initiated this review, and the current completion schedule date is November 1, 1991; the results of this review will be provided to the Operations Staff for inclusion into the ground checking procedures (237-200-91-14101). These changes consist of adding caution statements to the Ground Detection Procedures to advise of anticipated valve movements (237-200-91-14102).

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

Also a review of the 125 VDC Distribution System was performed to identify other sensitive circuits. These circuits will not be checked by the de-energization method but will be checked by using a ground locator instrument until the technical review is complete.

F. PREVIOUS OCCURENCES:

Review of records indicates that this has not been a previous adverse trend. However, recent enhancements to the station ESF actuation definition policy has resulted the in a heightened level of awareness.

G. COMPONENT FAILURE DATA:

There were no component failures during this event; therefore, this section is not applicable.